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HYGEIA

A JOURNAL OF INDIVIDUAL AND COMMUNITY HEALTH

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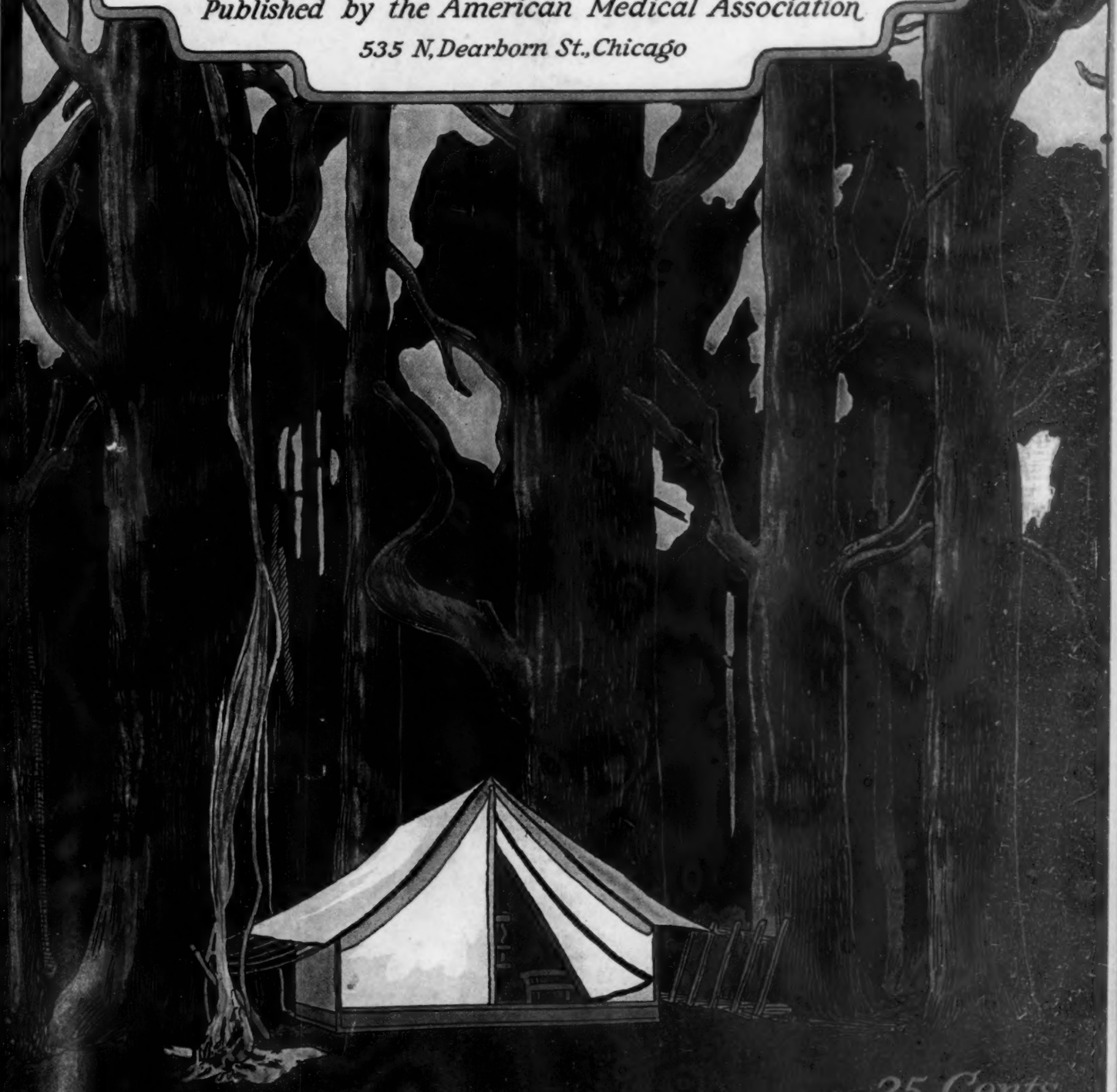

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A JOURNAL OF INDIVIDUAL AND COMMUNITY HEALTH

Published by the American Medical Association
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VOLUME 3 — SEPTEMBER, 1925 — NUMBER 9

SEPTEMBER CONTRIBUTORS

DR. THOMAS D. WOOD begins in this issue a series of articles on child health. He is a well known authority on child problems and is a professor of physical education at Columbia University. MARION O. LERRIGO is Dr. Wood's associate.

DR. HERMAN ADLER, who is the author of the first of a series of articles on crime prevention beginning in this issue, has made a long study of this subject. He has been state criminologist of Illinois for many years. DR. EDWARD JACKSON, western physician, follows his recent contribution on baby's eyes with an interesting article on the care of the school child's eyes. Dr. Jackson is a member of the Joint Committee on Health Problems in Education of the American Medical Association and the National Education Association. GERTRUDE KLINE, R.N., is a public health nurse in an eastern city. DR. LYDIA ALLEN DEVILBISS, popular health lecturer on chautauqua and lyceum circuits, lost more than fifty pounds by diet and exercise, so she writes on the treatment of obesity from experience.

DR. WILLARD BARTLETT, author of the article on goiter, is connected with a large university in the Middle West and specializes in surgery. DR. CECIL K. DRINKER is professor of physiology at the Harvard School of Public Health and chairman of the Resuscitation Commission of the American Gas Association.

DR. FREDERICK BOGUE NOYES specializes in the correction of dental irregularities in children's teeth. PROF. LOUIS GERSHENFELD of the Philadelphia College of Pharmacy continues in this issue his articles on exterminating household insect pests. DR. NORMAN TOBIAS, who devotes his attention to diseases of the skin, is connected with a Middle Western medical school.

"SCHOOL DAYS" NUMBER

Following a HYGEIA *precedent, the October issue will be primarily an educational number, with many of its articles appealing to fathers, mothers and teachers. Among the educational articles scheduled for October are:*

CARE OF THE SCHOOL CHILD'S HEALTH. *By Thomas D. Wood and Marion O. Lerrigo. This is the second of an instructive series, treating of the child's health as a cooperative enterprise between parent and teacher.*

NATURAL GYMNASTICS IN THE PUBLIC SCHOOLS. *By Helen M. Smith of the University of Cincinnati. Miss Smith tells teachers how to reach the many children who profess to "hate gym."*

CORRECTIVE EXERCISES FOR THE PRE-SCHOOL CHILD. *By Helen King of the Merrill Palmer School, Detroit. From this famous nursery school comes an article of interest to mothers on how to develop good posture, good feet and good general health for the child who has not yet entered school.*

Contributions to HYGEIA *are considered, and, if accepted, paid for. Stamps for the return of unaccepted manuscripts should be enclosed. All communications should be addressed to* HYGEIA, *535 North Dearborn Street, Chicago, Illinois.*

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Poster by Dorothy Wray Barbour, West High School, Rochester, submitted in HYGEIA *health poster contest.*

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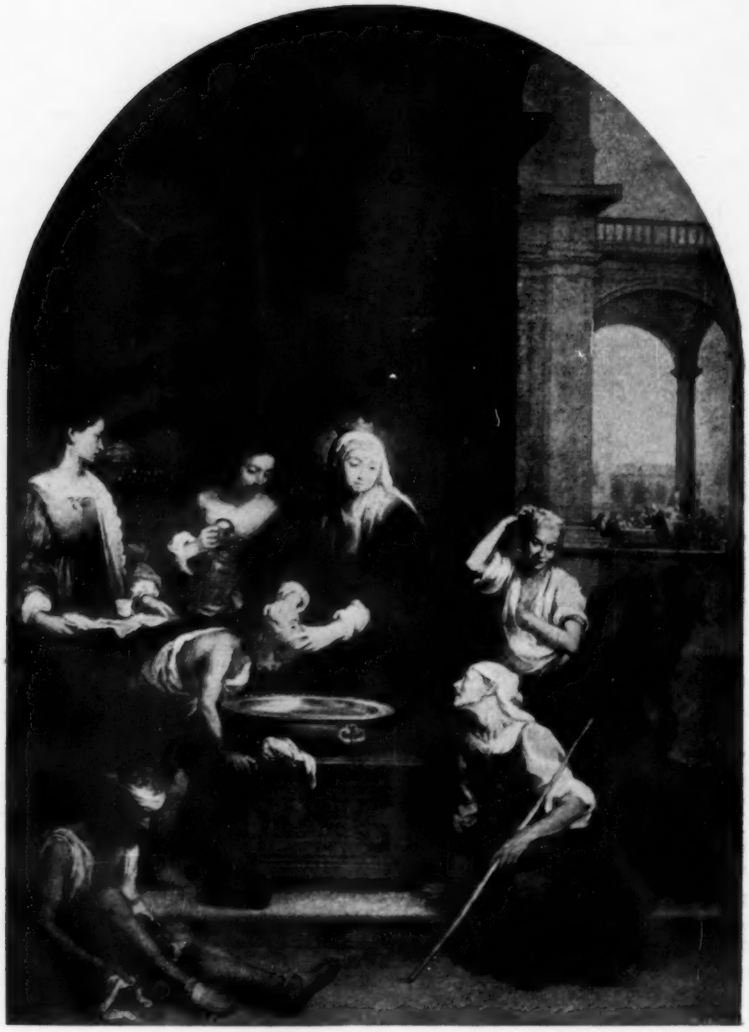


ST. ELIZABETH AMONG THE LEPERS

THE patron saint of lepers is St. Elizabeth and in paintings she is almost always represented in the company of lepers, as she is in this work of Murillo (1618-1682), which now hangs in the Prado at Madrid.

While St. Elizabeth washes the head of a leprous boy, another victim of the disease cowers on the floor. The other patients evidently are suffering from other complaints. The radiance inspired by her enthusiasm for a noble cause lights up the whole picture.

Pacific and Atlantic

Care of the School Child's Health

I. Before School Days Begin

THOMAS D. WOOD AND MARION O. LERRIGO

THERE is a certain kind of novel, now rather unpopular, which begins the story of the hero at his birth, and carries it patiently through babyhood, childhood and youth, to manhood. This method of going back to the beginning is apt to be tedious in a novel, but in any discussion of the problems of school life it is essential. There is no school problem whether of education, morals or health, which can be considered entirely apart from the life of the child before he enters school. It might be said that some of the most important events of a child's school life occur before he enters school.

Unfortunately we have as a nation been slow to recognize this in matters of health. Although we have splendid health programs for babies of one to two years of age, and although our school health programs are being rapidly improved, relatively little has been done for children between the ages of two and six years. This is the neglected age. Consequently many children enter school unfit to profit by its opportunities and unable to cope successfully with the strain of its new and untried experiences.

The Regular Ounce of Prevention

The health examination at school entrance and at intervals during the school life is coming to be one of the universally accepted standards of an adequate school health program. There is no reason why the child should be without this important service during the first six years of his life. It is in fact even more important that the regular health examination should be given to the preschool child than to his older brothers and sisters.

Physicians who have given their careful attention to the study of the life and health of children believe that every child should receive a thorough health examination at least twice a year during the years before he enters school. This is the real growing age. In the first five years of life the average child grows about twenty-two inches. He does not add an equal amount to his height until about ten years more have passed. Even in adolescence, the rate of growth is slower than it is during the preschool period.

Yet it is the child at this important period of life who is usually neglected, so far as a systematic program for the care of his health is concerned.

An examination of 1,061 children about to enter the schools of New York City was made in 1921. As reported by Dr. Jacob Sobel, the examinations showed that more than two thirds of these children had physical defects. The most prevalent defects were as follows:

DEFECT	CHILDREN
Defective teeth	72 per cent.
Hypertrophied tonsils	26 per cent.
Defective nasal breathing	23 per cent.
Malnutrition	19 per cent.

Of this group, only one child in three was ready to enter school unhandicapped by physical defect.

A Perfect Thirty-Two

At about the time the child enters school, the first of his thirty-two permanent teeth are beginning to appear. However, if he is to have a perfect thirty-two, careful attention must be given to his teeth long before school days begin.

If the first twenty are imperfect or deformed, there is little chance that the second thirty-two will be perfect. Unchecked decay in the first teeth works a double injury to the child; it harms the teeth he is using at the time and it stores up trouble for him in later life.

The moral is obvious: All possible means should be used to assure for the young child a well developed, healthy first set of teeth.

This demands, among other things, that the diet of the mother before the child is born should include the right ingredients. Foods that supply calcium salts and vitamins are particularly important. An adequate diet for the baby himself after birth is the second essential.

The introduction of the baby to the toothbrush is an important event which should take place in very early life. The baby and the toothbrush should become acquainted as soon as the first teeth are well erupted. Brushing should be repeated several times a day with a gentle up and down motion.

All habits such as sucking the fingers or the use of pacifiers should be strongly condemned, since they ruin the shape of the mouth and jaw and the position of the teeth.

Last, but far from being least important, is the semiannual trip to the dentist. Fortunately an increasing number of persons are going regularly twice a year to the dentist for dental examination. The returns in good health are even greater for children than for adults, for the possibilities of prevention are greater.

Although the regular semiannual visits to the doctor and to the dentist are invaluable investments essential in preparing the child for his school life, they do not bring about any magical results that do away with the necessity for the careful daily safeguarding of the child's health which parents must provide. A day never passes without leaving its effect, good or ill, upon the child's health, and what that effect will be rests more definitely with the father and mother than any one else.

Among parents' most important responsibilities are: providing for their children regular, long hours of sleep, with windows open; regular, vigorous play out-of-doors; regular, nutritious simple meals, and the regular tonic and cleansing bath. The ill effects of failing to provide for these necessities of healthful living are not always immediately apparent, but the cumulative effects are sure and far reaching.

The daily health activities of the young child are important not only for their immediate effect upon the child's health, but because they form the basis for the health habits of later life. Psychologists and students of education have for a long time recognized the fact that the habits a child forms in childhood leave a permanent impression upon his characteristic habits in later life.

Most persons are unfortunately familiar with the child who fusses about his food, who refuses what is set before him, who is encouraged to "pick and choose" what he will eat, who eats sweets and pastries rather than simple nutritious foods, or who eats irregularly at any hour of the day or night.

Such a child has a far poorer chance of forming regular habits of healthful eating in later years than has the child whose diet from the beginning is well chosen, regular and simple. It would be interesting to know the habits of eating that were practiced by a thousand middle aged dyspeptics in their childhood!

Generally speaking, more malnutrition is found among the socially and economically favored classes than among the poorer classes. There are two reasons for this: (1) delicate children survive more frequently among the favored classes than in the poorer families because of the superior medical attention that the parents can obtain; and (2) children of well-to-do families can more easily indulge their appetites for fancy food. Both at home and away from home they find it easy to secure dainties and sweets to eat between meals; they can afford to be finicky. Among the poorer classes, on the other hand, economic necessity develops simple food habits.

Specialists are using the following treatment for malnutrition in many cases. The child is put to bed and kept quiet until he is rested. Then he is fed simply, regularly, and firmly, with wholesome nutritious food, and given no opportunity to indulge his whims and fancies until his food habits are reconstructed.

The Healthy Personality

It is only in comparatively recent years that the study of mental hygiene has begun to assume the form of science. However, one of the most significant facts that is emerging from all present day studies of mental health is that the time to begin building a healthy mental and emotional life is in babyhood and early childhood. Many sorts of queerness, many foolish and irrational fears, or phobias, have their origin in some unfortunate and unnecessary childhood experience.

It is worth while to discuss the problems of mental hygiene relatively at length, not only because they are too frequently ignored in discussions of child health, but because there is no phase of the child's welfare which is more

important in preparation for school life. The school teacher knows all too well the unnecessary handicaps of twisted and stunted dispositions which children have already acquired in the brief years before they enter school.

It has long been customary to assume that children are naturally afraid of the dark, of animals, of strangers, and of the numerous other things toward which they show fear. Psychologists are claiming, however, that practically none of these fears is natural or inevitable; that most of them are learned, and many could be prevented. In a well known series of experiments, new born babies and very young babies observed closely over a period of weeks showed fear only upon hearing sudden loud noises and upon having support removed from beneath them. The conclusion is that children do not naturally show fear of animals, or of the dark, or of strangers.

How Fears Are Acquired

However, although a baby is by nature afraid of so few things, he can learn to be afraid of almost anything no matter how absurd it is to fear it. Often these acquired fears do seem most absurd until their origin is understood.

The mechanism of acquiring a new fear involves the process of association. It may be very briefly and simply illustrated as follows:

Suppose that a child has no fear of anything excepting loud noises and being dropped. However, during a thunderstorm he sees a strange black cat at the same moment that he hears a loud clap of thunder. He is naturally afraid of the thunder. But he has seen the cat at the same time, and it is quite possible that by a process of association, he will also become afraid of the cat. That is, the fear naturally aroused by the loud noise may spread to other objects that were within the child's attention at the same time.

This is, of course, a very simple description of a very complex process, but it serves to illustrate the point that children's fears should not be scoffed at or ignored. They should be studied, and every effort made to discover their origin. Then the parents should help the child to overcome them, by explaining the circumstances and by building up pleasant associations with the object of which the child is afraid.

Since children so easily develop a myriad of unnecessary yet deeply disturbing fears, it is obvious that no deliberate attempt should ever be made to frighten the child.

There are other emotional habits whose regulation is as important as those of fear. Worry, shyness, and self-consciousness are closely allied to fear. The shy, easily embarrassed, self-conscious child is seriously handicapped when he enters school by inability to get on easily with other people. His shyness keeps him from making new friends, from joining in the games

Pacific and Atlantic

If you want your child to develop a healthy personality, see to it that he plays with other children of the same age. If he leads in one sport or game, he should be willing to follow in another. "Alternate leadership, followership and fellowship" is the ideal.

played by the other children, and it may be so intense that he cannot make a good recitation in school, even though he knows the lesson well.

Correcting Shyness

The wise parent watches for these characteristics and begins, as soon as they appear, to try to correct them. Playing with children of the same age is an invaluable corrective. Moreover, the old rule that children should be seen and not heard should be applied with discretion. For the bold, too forward child it is doubtless a good thing, but it is deadening to the child who already has a tendency to retire into himself and to withdraw from social activity.

The ideal of the happy medium is embodied in the phrase "alternate leadership, followership and fellowship." The child should have many experiences of each type. He should be able to initiate and organize a game, to lead his comrades. But he should be no less able to follow directions when some one else is leading, and to enjoy the companionship of his group.

He should be able to listen and to talk, and he should learn in childhood what many grown persons apparently never have learned—to know the appropriate times for speech and for silence.

Must Learn to Tell the Truth

Aside from emotional control, there are certain intellectual characteristics which the child should acquire for the maintenance of mental health. The moral value of truthfulness is everywhere recognized, and this is well, for truthfulness is also essential to mental health. It is important not only to tell the truth but to be able to recognize the truth, to face facts and to interpret their significance.

Children should never be lied to and they should not be confused by irregular discipline which punishes an act one day and ignores it the next. Promises made to them should not be broken. Aside from the moral issues involved, these practices confuse the child, and make it difficult for him to form the habits of orderly thought which are essential for mental health.

Imagination is one of the blessings of childhood, but it should be wisely guided. Children should be encouraged to find a real solution to each difficulty that confronts them; they should not form the habit of day-dreaming to the extent that the real problem goes by unsolved. Both practical activity and day-dreaming are ingredients of healthy personality; they are complementary to each other.

Most children have at some time or other imagined themselves the shining star of a three ring circus, thrilling thousands of enthusiastic spectators. These children show more healthy tendencies if they actually plan and carry out a circus of their own, however crude, than if they content themselves with splendid imaginings.

Aside from the regular health examination and dental service, and the formation of good health habits, there are some methods of protection against specific diseases that all parents should use for their children. Vaccination is now practicable, safe and effective for several of the common diseases. It has long been recognized that vaccination against smallpox is the best method of controlling that disease. All children should be vaccinated against smallpox before entering school.

Vaccination is now possible for diphtheria, typhoid fever and scarlet fever, as well as smallpox.

Some children are not susceptible to diphtheria and scarlet fever, and they need not be vaccinated for these diseases. The fortunate immune children may be discovered easily by a very exact test, which, if skilfully done, amounts to little more than a pin prick. All those whom the tests show to be susceptible should be vaccinated.

In cities where water and milk supplies are safe, and where sewage is disposed of in a sanitary, adequate fashion, typhoid vaccination is not uniformly necessary. For vacations in camps or summer resorts, however, it is a wise safeguard.

Whose Responsibility Is the Child?

Growing partly out of the necessity of caring for the young children of employed mothers, the nursery school is rapidly attracting the attention of educators all over the country. Some of them are advocating the nursery school not only for the children whose mothers must work all day, but for all children. They argue that the trained teacher, the scientifically planned daily activities, carefully selected surroundings, and association with children of their own age, are advantages which the average home does not and is not likely to supply for years to come. It is claimed that the child is better able, both physically and mentally, to enter school successfully if he has gone to a nursery school than if he has spent all his days at home.

This point of view is not by any means accepted by all educators. The desirability of the universal use of the nursery school is highly debatable.

But one thing is not debatable. The scientific, careful attention to the child's health which is a part of the nursery school program is the child's birthright, and whether by the school or by the home the health of the young child must be protected.

This article has treated in brief the necessity for protecting the child's health before he enters school in order that his life during school years may be full and sound. Only too often parents know less about the schools to which they send their children than they do about the bank in which they deposit their money! The following articles will deal with the things which parents should know about the provisions the school should make for the care of the child's health and with the responsibilities of parents in regard to these matters.

Preventing Crime

By Mental and Physical Examination of the Young

HERMAN M. ADLER

A HUNDRED years ago the western world was startled by statements from distinguished medical men that the insane are to be considered sick and not responsible; that because of this, although they are dangerous to the rest of the community, they are to be treated without regard to the damage they may have wrought. From this early beginning, the modern system of state hospitals, sanitariums, psychopathic hospitals and mental clinics has developed. When an individual is found definitely to be mentally diseased, he is considered not responsible for his actions, even though these may be criminal in the extreme.

The change in our attitude toward the insane is due, in part of course, to the progress of public opinion, but in the main to the development of mental science. Through psychology and psychiatry it is now possible to make definite diagnoses of the existence of disease and abnormality in individuals who formerly would have been called vicious. Nevertheless, our knowledge is far from complete, so that there are many cases in which criminal behavior still stands out by itself and only those experienced in the scientific study of human behavior can see the true underlying cause.

Prevention Should Start in Childhood

Whether it is merely a pious hope on the part of the scientist or whether ultimately the entire gamut of behavior disorders may be subjected to rigorous scientific analysis remains to be determined in the future. Here and there, however, one finds cases in which it is now possible not only to demonstrate the disorder of the mind or body which underlies the criminal act, but also to apply actual treatment so as to lessen or remove the danger. Frequently this has been accomplished in adults, but the greatest possibilities for this sort of treatment must be in children.

The starting point of this work is to be found in the consideration that healthy persons, who are commonly called normal, will adjust themselves to the conditions of life in accordance with the behavior standards prevalent in their community. Therefore, behavior that is very exceptional may be interpreted as due to a deviation from the common norm either in innate qualities or in acquired habits.

If the behavior is in the direction of advance and improvement on that of the community, in other words if the person is in greater or less degree a genius, his deviation is due to superiority. When it is in the other direction the deviation must be interpreted as an indication of inferiority.

Unfortunately a given variation is much more likely to be in the direction of inferiority than of superiority. It is because of this fact that there are so many more inadequate persons, who are more or less dangerous to the community, than there are superior persons who contribute to the progress of mankind.

Two Kinds of Inferiority

Inferiority may be of two kinds. The much more common manifestation is that in which an individual is not conducting himself in accordance with his best ability. This is commonly summed up in the term "demoralization" and the treatment for it is through what during the war was called "morale work."

Since this is by far the most common reason for unsatisfactory or dangerous behavior the customs and laws of the community have been arranged to meet it and the purpose of most of our disciplinary arrangements is to stimulate the individual to increase his effort either in the direction of output or of self-control, so as to approach somewhat more nearly his highest possible capacity. The general public places reliance on effective leadership by example, persuasion or exhortation, as well as on the effect of punishment.

The other kind of inferiority is that which is due to some inherent inadequacy. This type of person, no matter how much effort he may be able to exert, can not get beyond a certain highest point, which still is below the level of adequacy.

It is with the latter problems that modern science concerns itself in the main. It endeavors to detect the existence of such a degree of inferiority early in life and to correct it so far as possible by proper treatment, in order to avoid the disastrous effects of antisocial and criminal behavior in later life.

Through the so-called intelligence tests it is possible to determine at almost any stage of a person's career what his mental rating is compared to that of the community as a whole. It was thought at first that by this means it would be possible to single out those persons who because of inferiority are a menace to the safety of the community.

However, this measurement taken alone does not satisfactorily solve the problem of inferiority, because in many cases it has become apparent that though there may be low intelligence as compared to the standard of the group, there may be sufficient strength in other traits to counterbalance it and thus protect the individual against antisocial and criminal acts.

It turns out, then, that mere stupidity is in itself not a great menace. This, of course, applies only in a community in which the number of persons of inferior intelligence is balanced at least by a like number of those with superior intelligence.

Why Some Persons Behave Irregularly

In dealing with other factors which contribute to inferiority, progress has seemed slow to the general public because the methods are not as clear cut nor is it always apparent in just what manner these factors affect the behavior of the individual. There are a great many ways in which a person's equilibrium may be upset both as regards his unconscious and his conscious self. The result is irregular behavior.

Such simple and rather general disturbances as malnutrition, anemia, heart disease, or disturbances of the digestion, which in themselves have perhaps no direct effect on behavior, may reduce the general efficiency of a person so as to cause him to lose control of himself and commit a criminal act. The so-called glands of internal secretion play a tremendously important rôle in the development and functioning of the entire organism. When disordered, these glands may impel the individual not only to specific acts to gratify unusually intense appetites, but may upset the general stability of the organism enough to prevent its being able to resist temptation or to restrain itself under certain provocative circumstances.

In none of these cases is there a specific relationship between a particular disorder in the body and a particular criminal act, but rather a predisposition to irregular behavior because of the state of health in the body and the mind. The environmental setting, the occasion or the time, may determine the nature of the act, especially when the act is of an explosive sort due to accumulation of tensions and discrepancies within the individual.

At the present time it is not possible to examine a child and to predict the particular type of criminal act, if any, he will inevitably perform. This, it is true, has long been the hope of certain anthropologists, especially of the criminal anthropologists, the followers of Lombroso. It may be that this will never be possible. But it is possible to say, on the basis of examinations, that a certain individual will be very likely to commit some dangerous act and in the main perhaps to differentiate as to the general type of behavior to be expected.

A great many of these physical disorders are now subject to specific correction. Malnutrition, anemia, and similar conditions are well recognized problems of medicine. The glands of internal secretion more and more are becoming subject to specific therapy. Similarly in the mental field slight disorders of thinking, of dealing with unpleasant experiences and memories, of handling the ego and preventing overbearing and arrogant conduct, are now open to treatment.

Behavior Clinics an Aid in Prevention

Because of the growing acceptance of these general points of view, so-called child guidance clinics and institutions and bureaus for dealing with juvenile behavior disorders have been created in various communities throughout the country. These organizations work with schools, kindergartens, juvenile courts, parents and social agencies. They consider the behavior problems of individual children with the idea of determining the factors upon which the behavior disorder is based. After careful analysis of each case treatment is determined upon and applied.

This work cannot be expected to show its maximum effect immediately. It must be continued for a generation at least. When the children who are now being subjected to this new form of examination and treatment have grown to be men and women the results, we hope, will be seen in a lessened crime rate and an increased amount of happiness and satisfactory adjustment of these individuals to their surroundings.

Eyes for School

EDWARD JACKSON

BY THE time a child starts to school, his eyes have had a large part of their training. They are almost grown up and must start to work, before the boy has learned to play baseball or the girl has begun to lose interest in her doll family. Prior to school days, the eyes looked when they pleased and at what they pleased, and as long or as short a time as they wished. Now they are put to work, and must keep at one job till it is done, even if they are tired.

In earlier childhood, when the light was too bright, the boy shut his eyes and turned away; when the thing looked at was not interesting, he looked at something else; when he had looked until his eyes began to feel tired or uncomfortable, he quit looking. But when the eyes go to work they must keep at it, even if the conditions for work are not good and the hours are too long. It is the business of older persons to see that the conditions for eye work are good, the school hours not too long, and the work is interesting.

Modern Eyes Are Greatly Burdened

The child is guided by instinct. If he is allowed to make the natural response to all his sensations, we can assume that he is fitted to do what he undertakes. But when he is drafted to do things it never occurred to him to do, that his ancestors a few generations back did not have to do, some kind of inspection should be made in order that we may be sure we are not trying to make a pair of eyes do what they are not fitted to do and cannot do without permanent harm to themselves and their possessor. The child did not choose his eyes, cannot change them for another pair, or get them renewed when they are used up.

It is reasonable, then, when starting a child to school, to think about how much light there should be in a schoolroom, and from what direction it should come, how the eyes should be placed with reference to light, how long the average young eye can be kept doing one thing without change of exercise, and what size of letters the eye can rightly be expected to keep looking at during the required hours.

Eyes Should Be Examined Periodically

It is most important for the individual child that his particular pair of eyes should be looked at and tested to make sure that he is not starting in the race of school life with an impossible handicap that can result in permanent physical damage to the eyes, an ineradicable distaste for reading and a fixed idea of mental inferiority.

Education puts the eyes to work, and keeps them at work through school hours and all other hours. The working hours of eyes have a tendency to lengthen instead of shorten as the child grows older. To make sure that the eyes are fit for school requirements they should be examined, and to be certain they are fit for duty the examination should be repeated. The examination of the eyes of school children should be a form of periodic health examination. Appreciation of the value of those examinations will come when the child arrives at years of wisdom.

A mother was told, "If your daughter complains of headache don't pay any attention to it. Let her get over her notions."

An opinionated school teacher pulled down all the shades to prove to her children that they could see with less light although this kept them straining twice as hard all through school hours to do their required tasks.

A very near-sighted boy was taken to the other side of the room by his old-fashioned school master and told to read what was on the blackboard. He said he couldn't. Another boy was called there and did read it. "Now," said the master, "you see it can be done; do it." Again the boy, in perfect truth, said he could not. The master boxed his ears and gave him ten demerits.

Is it not more rational to find out what is the cause of the girl's headaches, and what the boy really can read across the room?

Examinations of the eyes of school children are worth while. They disclose all the defects, all the degrees of poor vision from which human eyes suffer. But most often they show faults of focus, far-sight (hyperopia), near-sight (myopia), or astigmatism (unequal focus for lines running in different directions or through different parts of the focusing surfaces of the eye).

Such faults of focus are corrected by glasses; that is, when the proper glass is placed before the eye, the eye and the glass together focus the light entering them, and the eye sees more clearly and more easily.

Neglect of Glasses May Lead to Invalidism

Some persons don't approve of glasses for children. If the child needs the glasses it may be an unpleasant necessity, but the fact that one dislikes to see a child with glasses on does not make it any less a necessity, or any easier for the defective eyes to do schoolwork without the glasses. It may be unpleasant to wear No. 9 shoes, but if that is the size of your feet your dislike for the big ones will not make a No. 6 shoe any more suitable. The girl will have headaches just the same if her mother refuses to pay any attention to them. The boy who had his ears boxed and received ten demerits did not see any better for it; nor did the fact that his father did not approve of boys' wearing glasses help him.

Headaches established in school days may occasion the invalidism of a lifetime. The boy using his near-sighted eyes for schoolwork, without the glasses he needs, may be laying the foundation for blindness in later life. Even if these worse results do not follow, it is certain the school efficiency of the child who needs glasses and his capacity for work in later years can never be as good without them. For parents to object to examinations of the eyes of a school child because they are afraid he may need glasses is to follow the example of the ostrich. To choose ignorance can never be considered to be a good defense against a danger.

What sort of examination should be made of a child's eyes when he goes to school? The best is none too good, but any is worth while, if followed up by practical results. The simple testing of the vision with letters, like those mentioned in HYGEIA for October, 1924 (p. 615), can be done by the teacher, principal, school nurse, or school doctor who is looking for other defects or signs of contagious disease. It at least shows whether for any reason the child is handicapped by poor vision and so indicates how much allowance should be made for the defect and how urgent it is to get it corrected.

A still better examination, because it will show more completely the exact nature of the disease or defect that prevents good vision, is an examination made by an oculist—a regular doctor of medicine who is trained and experienced in examining eyes. This may be the school doctor or the family doctor. He will apply the appropriate measures to make the eyes more efficient.

Parents generally accept their children as they are, including defects that others might notice more critically, such as a tendency always to hold the book close to the eyes, a scowl of effort on the face, redness of the edges of the eyelids, a twisting around to get a certain light on what they look at, a distaste for books, or an inability to keep looking at them steadily, as working eyes must. Teachers are more likely to notice these things, and the trained school officer whose business it is to be looking out for them can be better relied on to discover the real state of affairs.

But the best results come from cooperative observation in school and home, to find out that glasses are needed, to supply the proper glasses, and to see that both at school and home the glasses are worn, and the eyes are used under the best conditions.

Far-Sighted Eyes

A common error concerning the eyes is, that if the child can see clearly, his eyes are all right and are fit for schoolwork without glasses. Far-sightedness, unless of unusually high degree, allows clear vision at near and distant points.

A far-sighted eye may be able to see perfectly at six inches, and an eye with perfect focus can be made to do so at four inches. Either distance is closer to the eye than objects that are looked at for more than an instant should be held. But the far-sighted eye sees clearly only by making an extra effort. It has to work just as hard to focus at six inches as the perfectly focused eye does at four. It is far-sighted, not in the sense that it can see things farther away than the perfectly focused eye but in the sense that it is more handicapped for near seeing than for seeing at a distance. Even for seeing at a distance it has to make an extra focusing effort,

and it has to keep up the focusing effort even at a time when the eye with perfect focus, or the eye with its correcting glass, can relax entirely.

Even if the defect of focus of the far-sighted eye is not very great, the constant need to make up for it is a cause of nerve strain that frequently results in headache. If astigmatism is added to far-sightedness, an additional strain is caused.

Uncorrected far-sight, with or without astigmatism, is often the origin of distaste for reading and other schoolwork. The healthy child does not like to be punished by eyestrain and, without thinking much about what his sensations are, he avoids instinctively those sensations which are unpleasant. This may cause his entire education to be a failure, but it does save his eyes and nervous system from harm. If the instinct is the only safeguard afforded, nature falls back on it even at the cost of sacrificing educational opportunities. The boy who will not study is sometimes nearer right than are parents or school authorities who will not have his eyes examined to see if glasses are needed.

Near-Sighted Eyes

Myopia, near-sightedness, is particularly important during school life because this is the time that it usually develops and increases most rapidly. It does not cause headaches, although sometimes when the condition is increasing rapidly the eyes are painful; it does not cause a distaste for books.

Indeed the myope is more likely to become a bookworm. Without the needed glasses, he is handicapped for such games as baseball and tennis and he turns to near things for recreation, using his eyes continuously for near seeing whether at work or play. If he once gets started in this direction during school life, the tendency is for the myopia to get worse. If it becomes progressive and reaches a certain degree during school life, the eyes may continue to grow worse throughout life, and various resulting diseases of the eye, such as atrophy of the choroid coat, cataract, or detachment of the retina, may bring blindness in later life.

Even a low degree of myopia, which still leaves it possible to read fine print at the ordinary distance and does not interfere with distant vision enough to be noticed by the child or his caretakers, is very important at the school age because of its strong tendency to increase. Intelligent testing and examination of the eyes at that time offer the only hope of stopping it while it is still a minor defect. Astigmatism, too, must be guarded against, but so much is to be said of it that it must be another story.

Another reason for examination of the eyes of school children is to detect contagious disease of the eyes and prevent its spread. Contagious diseases are always given an advantage when people are brought together. Cholera epidemics were spread by pilgrims gathering at holy places. Measles, smallpox, typhoid and typhus fever have been spread by armies.

Trachoma followed the armies of Napoleon and spread throughout Europe, leaving damaged eyes. For the treatment of these several of the most noted eye hospitals of the world were established. Trachoma must be kept out of schools by examinations of the eyes and by the treatment of those affected. In the great war, many cases of trachoma were brought to France by the labor colonies from Egypt and China, but it was held in check and largely eradicated by thorough inspection and treatment of eyes of all who came from infected countries. In the fight against trachoma in the Indian reservations, the mountains of Kentucky, the infected regions of the Mississippi valley, and the great ports of entrance for immigrants, the examination of the eyes of school children is an important part of the campaign.

Favorable Conditions for Eye Work

When the eyes of school children have been found free from defects, when the faults of focus have been detected and met by appropriate glasses, and when contagious diseases of the eye have been excluded from the schools, it still must be remembered that these delicate organs have been put regularly to work. They are working full hours and often overtime, seven days in the week and fifty-two weeks in the year. They have to stand regular employment and be ready for emergencies. Even sick leave can only be granted them in extreme conditions. It is but fair and reasonable that they should be given the opportunity to work under favorable conditions.

Good light, good position, good air and good nutrition, all of which influence the working ability of the eyes are to be secured only by constant vigilance both in school and at home. The care of the eyes in school must begin with the choice of books and the arrangement of studies, the choosing of locations and the building of schoolhouses. It must take into account the direction of the sun at the different hours of day, the provision of healthy bodies to support healthy eyes, the cooperation of child, parent, teacher and community.

Our civilization is peculiarly one of sight. It is the dominant sense and the constant guide and servant of all our bodily powers. This should be recognized in the training of children for our civilization, for this sense can never be safe except in the care of those who are informed about it and prepared to use it under the rule of reason.

This is work not only for teacher and parent but also for the educated child. One of the first things to be taught is how to use these essential tools of education. He can be shown that bringing fine print closer to the eyes makes it harder

and harder to see clearly, until the effort becomes impossible; and thus he will be impressed with the importance of keeping the page at the proper distance, at least one foot from the eyes. The testing of his vision illustrates what really is or is not good sight. It is easy to show how light should shine on the things looked at and not on the eye, and how the best light comes from above, from the sky.

When instinct must be given up as a guide to the use of the eyes, education should be ready to step in and take its place, particularly as to rest and recreation for the eyes. This must be obtained by closure of the eyes in sleep, by their relaxation in looking off at a distance and toward a relatively dark and uniform background, or by closing them for an instant while fixing some sentence in the memory. Such intermittent rests are important in keeping the eyes up to the high standard required by modern educational methods.

Unless the important physical needs and limitations of the eye are habitually respected, these organs are made a sacrifice on the altar of civilization. We want eyes for school, as native powers devoted to a worthy purpose, not as the sacrifice to a modern Moloch, a power demanding "human sacrifice, ordeals by fire, self mutilation."

Amusing the Convalescent

GERTRUDE KLINE

SICKNESS stands in awe of no season, recognizes no holidays. A temporarily disabling accident may happen to any drudge or dude any day or date.

In acute illness, whether medical or surgical, every one knows that it is best to have the patient's room free from all unnecessary draperies, ornaments or accessories. But when illness is prolonged, when the critical stage is past, when convalescence is irksome not only to the patient but to the family, then it is that relatives and friends may assist in cheering the sickroom atmosphere, changing it to one of placid pleasure and tranquil enjoyment.

Today may drag monotonously into a tomorrow no different from any other day. Such a state of affairs is unendurable. A weakened physical and nervous system rebels and exhibits its revolts shamelessly in peevishness, in tempers and sulking. The patient has a sneaky appetite at meal time and his sleep is irregular, fitful and restless. This general irritability retards convalescence and hinders the return to health. He has life but no liberty to speak of; why should he not have the pursuit of happiness?

All of the following suggestions have been used with varying degrees of success to rouse the patient's interest, to stimulate him to carry on projects in bed, to reawaken the desires for normal every-day life. To render possible even mild endeavors certain articles are a great help and they are listed as follows:

An ordinary chair with the legs sawed off, painted white and made comfortable by pillows, makes a good head rest for the patient who can sit up. When placing the legless chair in the bed, one should put a rolled blanket or some large magazines under it so as to tilt the front edge up. This will remove undue strain from the patient's tired knees.

A bridge lamp is an accessory that will be found helpful to patient, doctor and nurse.

A bedside table with an adjustable tray of white enamel or of wood to match the bedroom furniture costs $10 and up and is so serviceable that it is well worth buying. It may be used for the tray at mealtime, or may be tilted to hold a heavy book, magazine or writing pad. A doll's table with about four inches sawed off the legs makes quite a satisfactory substitute.

A telephone extension and a radio, if one can afford them, allow the shut-in to rub elbows with the people of the workaday world.

Rather nicer to look at idly than to stare unwinkingly at the casual crack in the wall is a stand of potted ferns or a bowl of sprouting bulbs. Far better it is to follow the endless flashing of a couple of goldfish and the great deliberations of a snail in a small aquarium than to trace an interminable pattern on the ceiling until a headache blinds one.

All the pleasure of any kind of music is afforded by a small portable phonograph and not too heavy an album for records. A needle that does not have to be changed frequently is best, thus avoiding the danger of losing needles in bed. In addition to instrumental and vocal selections of popular and classical music, there are story records, bird songs, whistling, laughing and comic records that are entertaining.

Checkers, regular insets for a specially constructed board, are more enjoyed by the bed patient than the weary traveler for whom they were designed.

Books, magazines and a writing case properly appointed should be within reach. Cross word puzzles and a dictionary and other puzzles tease the patient's will power until it grows stronger than his won't power. A diary or a line-a-day book is well liked by a youthful patient or an elderly patient. Women or business men appreciate a memorandum book for record of callers, flowers and gifts.

Adults may enjoy making scrap books or puzzle pictures for little children.

Something to be reckoned with in the care of a patient is his extreme sensitivity to sounds and to odors, pleasurable and otherwise. This is particularly true of blind, deaf and nervous patients, and much annoyance or enjoyment can be afforded accordingly.

Children convalescing from empyema (an accumulation of pus in a cavity of the body, especially the chest) have often to be coaxed to blow water from one bottle into another; the tubes and bottles are not very interesting, but the process is most beneficial to the patient. For a change, pin wheels are fun, or blowing soap bubbles (protect the child with a light woolen blanket), or blowing up balloons till they burst. Balloons may be bought by the dozen at a very trifling cost.

Children Like Clay Modeling

Children who have to lie flat on their backs but are allowed to use their arms and hands will occupy long hours with modeling clay. It is oily and smelly, but these are minor considerations, and the mother may have the satisfaction of leaving a contented patient while she attends to household duties.

A little paralytic who could use one hand and one foot was much amused by having one end of a string tied to a roly-poly, the other end being tied to her toe so that a slight movement of her foot would upset the toy. A string tied to her wrist and to a little dinner bell was rather useful. A mouth organ's praises can not be overdone. It is surprising how greatly they are appreciated. So are light mechanical toys.

A youngster in a hospital who was slung up in a Bryant's frame while her fractured femur was knitting went right on with her school work, using a small easel blackboard with the legs sawed off.

In this hospital a little girl who took medicated baths and cried many salty tears during each one was made happy during her treatment by being given some cork and rubber toys. These toys failed to interest another youngster who was interested in boats and ships.

Knitting, crocheting, sewing, coloring cut-outs or knitting on a frame may all be done without assistance from a grown-up. One should never permit any project to be continued beyond the fatigue point.

Games and stories on the phonograph have unlimited possibilities if an enthusiastic assistant is at hand, particularly for orthopedic cases in which certain exercise is required for particular parts of the anatomy.

Most doctors and nurses know of a great variety of simple amusements and are only too glad to pass along some of their knowledge. Their wider experience and good judgment of the abilities and capacities of the patient's strength is reliable and is to be respected and appreciated.

Try to Put Yourself in Patient's Place

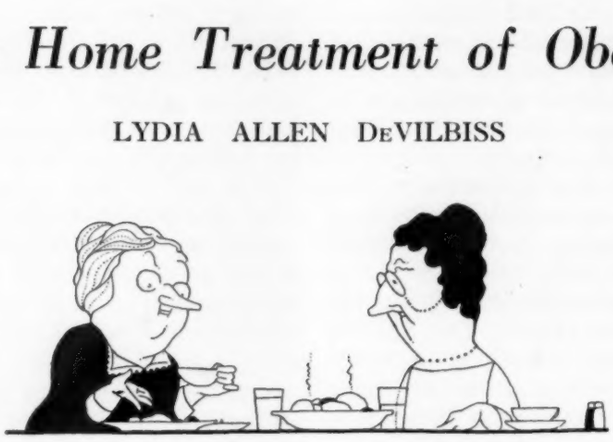
Though at first thought it may seem that a bed patient is impossible to keep happy and contented, try to put yourself into a position similar to his. Imagine, if you can, your own reactions. You will most certainly want to scatter sunshine rather than to get off idle patter like, "My, wouldn't I just love to lie in bed a while too." The patient has in all probability just as many business worries that should be attended to as you and as much routine work that he is anxious to do. Think how you would feel to have suddenly to commission most of your work to others for a length of time. Every person is instinctively active; remove the possibility of activity and a person's whole make-up is disturbed no matter how strong a mind or will he possesses.

A complete understanding of the patient is of more importance than an offer of misguided sympathy and unwanted pity. You must not laugh when a patient cannot bear to have the furniture always arranged the same way, or cannot stand to have it out of its accustomed place. He may adore an old fashioned quilt for a while and then come to abhor it.

It is, of course, not advisable to humor all a sick person's whims, but a judicious spoiling will help along a cure.

The Home Treatment of Obesity

LYDIA ALLEN DeVILBISS



THERE are those who like to remark airily, "Oh, it is no trouble for me to reduce. All I have to do is to give up bread and potatoes or cut down on my desserts and I can take off as much weight as I want to." This article is not for such persons as those.

However, if such persons are more than 10 per cent. overweight for their height and age and can reduce without any difficulty, then by all means they should do it. The longer the condition of overweight is allowed to exist, the more difficult is the cure. The day may come when they will find that they can not reduce with the ease they imagined.

But if, on the other hand, some unhappy individuals have made frequent efforts to reduce without any appreciable permanent results, if they have tried everything their friends have suggested and some things they have not, and if, in spite of every effort, their weight still remains about the same or is increasing—then to them this article will hold out hope. Their weight can be reduced to exactly what it should be, and this article proposes to tell them how to accomplish the result.

Hard to Reduce One Long Overweight

Excess fat may be likened to a huge snowball; the farther it goes, the faster it increases in size and the more difficulty there is in reducing it. In fact, so difficult is the reduction of persons of middle age who have been overweight for years and who perhaps have a family tendency to be stout that in at least one medical college of my experience the professor lecturing on the treatment of chronic obesity strongly recommends to young doctors in training that they refuse to take such cases in their practice. This professor contends that the cure of obesity in a person with such a history is virtually impossible outside of a sanitarium.

If the fat person can, by all means let him go to a sanitarium equipped for the treatment of this affliction. If he can not, then it is necessary for him to approximate the conditions of a sanitarium at home. For the cure of obesity is no less a task than the cure of incipient tuberculosis or the cure of any other chronic condition of long endurance and of extraordinary tenacity, once it has hold of its victim.

The cause of obesity no one knows. The factors that enter into overweight are: the amount and kind of food taken into the body; the amount of physical work or the energy expended to consume that food; and the rate at which the body consumes it.

The amount and kind of food and the amount of exercise can be accurately estimated and controlled. But the rate at which the body consumes food depends upon something about which as yet little is known. A beginning has been made in the study of the endocrine glands, but the problem of how to make the body expend the food taken in energy and heat and not to pile it up in worse than useless soft fat is something that science is only beginning to master.

Obesity Is a Mental Hazard

The mental factor is another that must be taken into account in the control of obesity. Obesity may be called a mental hazard, no less than is golf. Fat persons are proverbially good natured and inclined to indulge themselves in ease and luxury. So long as this habit of mind endures, a cure of obesity is impossible. Many fat persons start to reduce and quit because of their mental habits. Once let them become thoroughly dissatisfied with themselves and convinced that they want more than anything else in the world to get thin and they will accomplish their goal.

Obesity is essentially a chronic condition. It develops slowly and insidiously, the average rate of increase being half a pound a month, or five to six pounds a year. Such a small increase is not noticed for several years. Naturally a condition that requires months and even years to produce is not going to be overcome in a few days. Time is therefore a necessary element in the cure of obesity. A good rule to follow is to allow one month to reduce each ten pounds overweight for the height and age.

To estimate the correct weight for the height and age, multiply the height in inches by two. Thus the average woman of 30 who is five feet

six inches tall would weigh 132. As a woman grows older she is permitted some increase with her added dignity—but not too much. For the woman of 40 multiply each inch in height by 2¼. Thus the woman of 40 or over who is 5 feet 6 inches tall would weigh about 148. In computing the weight for a man, always add 5 pounds to make up for the extra heavy bony framework. This rule of thumb in computing weight will be found to correspond fairly accurately with standard tables of height and weight by ages.

When the weight has once been reduced to or even slightly below the normal for the height and age, it will be found to be a comparatively simple matter to keep it at that point. One can then enjoy average good meals without the guilty feeling that one ought not be doing it. However, the person who has a tendency to stoutness will always have to exercise some discretion in his diet, but no more than is ordinarily demanded for good health.

One-Food Diets May Be Harmful

A number of systems of dieting for reducing depend upon a reduction in the amount or kind of food taken. Most of them have their good points, but their chief difficulty is that the amount and kind of food that is taken is estimated or guessed at. The person may think he is taking the prescribed diet when actually he is far from it. He fails to get results, becomes discouraged and quits. One of my friends who had been trying to reduce was eating avacados (alligator pears) as green vegetables. She might as well have been eating brazil nuts or drinking top milk.

Frequently the system of dieting may be lacking in some foods essential to health and well being. This is the worst fault of freak diets, fasts and monodiets, or diets of one article of food. The system may be useful under some conditions and with medical supervision. But all such freak diets are unsafe and dangerous for a person to experiment with on himself.

The only safe monodiet is the milk diet, which is useful in certain intestinal complications. Three quarts of milk a day, taken at regular intervals in half pint doses, or six quarts of churned buttermilk will reduce the weight safely and rapidly, provided there are no indications against its use in this manner. But this milk reduction diet is not one on which a person can continue his regular occupation. For one who is obliged to continue with a considerable amount of physical work requiring sustained effort, a diet consisting of lean meat, green vegetables and fresh fruit (except grapes and bananas) will be more satisfactory. This diet will cause a slow but sure reduction.

However, before beginning this diet a physician should be consulted to determine the blood pressure and the kidney elimination and to advise concerning so large a proportion of protein. If this diet can be taken safely and if it is persisted in, it will reduce the average case of overweight, which is generally the result of eating too much starch and sugar in the form of bread, pastries and desserts.

The amount of food which the body requires in twenty-four hours varies with the age and size of the individual; also with his rate of food consumption. A good rule for estimating calories is that an individual requires one calorie of food value per minute just to maintain the bodily processes. This would amount to 1,440 calories in 24 hours, or approximately 1,500 calories each day. Physical work or energy expended by the individual requires additional calories. So it is that the average person consumes from 2,000 to 3,000 calories a day, and hard working men from 3,000 to 4,000.

Cutting the maintenance diet from 1,500 to 1,200 calories or less will result in the net loss of one pound or more a week. Cutting it squarely in half or to 750 calories will bring a larger net loss of from two to three pounds per week. Many persons will lose faster than this, especially for the first week or so. But these figures represent the minimum net average reduction for the period of the reduced diet. On somewhere between this 750 and 1,200 calories a day of the right combination of foods,

EXACT FORM OF COMPUTING DIETS

As prepared by Dr. Frederick W. Allen

	Protein gm.	*Fat gm.*	*CH gm.*
Calories, 570	55	30	20
BREAKFAST:			
1 egg	7.0	5.5	0
2 Lister biscuits	9.2	3.6	0
Grapefruit, 102 gm	0	0	5.1
Bran wafers (no food value)	0	0	0
Whole milk, 30 gm	.9	1.0	1.5
Coffee	0	0	0
LUNCH:			
Beef broth, 150 gm	3.6	0	0
Haddock, 51 gm	8.6	0	0
Asparagus, 100 gm	2.0	0	3.0
1 Lister biscuit	4.6	1.8	0
Lettuce, 30 gm	.3	0	.9
Tomatoes, 67 gm	.6	0	2.7
Bran wafers (no food value)	0	0	0
Butter, 9 gm	0	8.1	0
SUPPER:			
Veal chop, 50 gm	8.0	2.5	0
Spinach, 100 gm	2.0	0	3.0
Celery, 30 gm	.3	0	.9
1 Lister biscuit	4.6	1.8	0
Egg white, 25 gm	3.0	0	0
Strawberries, 39 gm	.3	0	2.9
Bran wafers (no food value)	0	0	0
Butter, 7 gm	0	5.7	0
Total	55.0	30.0	20.0

a person can go about his usual occupation, provided it is not too strenuous. He will not be hungry and he will be fairly comfortable.

In a sanitarium, or in a home in which it is possible to approximate the conditions in a sanitarium and in which the person has little to do except to take care of himself, this diet can be still further reduced to 600 calories. On this amount of food the net average loss will be 3½ pounds a week. Of course, certain persons lose faster than others. But an average weekly loss of 3½ pounds a week is quite as fast as it is safe and desirable to reduce.

The exact number of calories required to obtain the best results under widely varying conditions, also the proportion of protein, fat and carbohydrate, is something that usually will have to be worked out under the direction of the physician. But any one will lose safely if he keeps somewhere under 1,200 calories a day, with a properly balanced diet.

Must Have 55 Grams of Protein a Day

A calorie is of course always a calorie. But there is a great difference in the way that calories of protein, fat and carbohydrate are utilized in the body. The protein is the muscle builder. The body requires a minimum of 55 grams of protein a day to protect the heart muscle. For reducing, this is best taken in the form of lean meat or eggs. Under no circumstances should any reduction diet provide for less than 55 grams protein a day, under penalty of doing the person's heart serious injury and possibly other damage.

The proportion of protein, fat and carbohydrate as given by Dr. Frederick Allen is as follows: protein, 55 grams; fat, 30 grams; carbohydrate, 20 grams. Since each gram of carbohydrate and protein supplies approximately four calories of energy and each gram of fat, nine calories, the 55 grams of protein is multiplied by 4, the 30 fat by 9, and the 20 carbohydrate by 4, which gives the total number of calories 570. This is about the lowest diet that is given for reducing, other than short periods of fasting.

Twenty grams of carbohydrate a day is a very small allowance. But undoubtedly it has been the large intake of carbohydrate in the form of breads, pastries, sweets and desserts that has been responsible for increase in weight. These foods also are responsible for much of the sour stomach, bloating, intestinal fermentation and gas common among fat persons.

Fat persons frequently have a low carbohydrate tolerance. On this low carbohydrate intake of not more than 20 grams a day, the sour stomach and gas will disappear at once, and such a person will feel lighter and more comfortable. He will also find that the gnawing hunger from which he has suffered as a result of overeating has disappeared.

SIMPLE FORM OF COMPUTING MENUS, USING 100 GRAM PORTIONS OF FOOD AND ONE OR TWO VARIETIES, APPROXIMATING THE NUMBER OF CALORIES

	Protein gm.	*Fat gm.*	*CH gm.*
Calories, 570	55	30	20
BREAKFAST:			
Coffee	0	0	0
Grapefruit, 100 gm	1	0	5
Whole milk, 30 gm	.9	1	1.5
2 hard boiled eggs, 100 gm	14	11	0
LUNCH:			
Lean roast beef, 100 gm.	24	10	0
Lettuce, 100 gm	1	0	3
Cucumber, 100 gm	1	0	3
Mayonnaise dressing	0	0	0
SUPPER:			
Chicken, 125 gm	16	1.5	0
String beans, 100 gm	1	0	4
Spinach, 100 gm	2	0	3
Butter, 6.5 gm	0	6.5	0
Total	60.9	30.0	19.5

Foods that will yield the proper number of calories per day and the proper proportion of protein, fat and carbohydrate cannot be estimated. The food must be weighed and the proportions computed. For this purpose a gram food scale, which can be obtained from a physician's supply store or direct from the manufacturer, is a necessity. The cost is between ten and fifteen dollars.

Gram food scales, both the beam and spring types, are made especially for this purpose. They are so constructed that the scale can be set to disregard the weight of the dish. This eliminates all computations in determining the weight of the food. The metric system is so easily learned and so easy to compute after one has learned it that it pays to employ it. The amount of food can be worked out in ounces but it is clumsy and more difficult, and the gram food scale greatly simplifies the work of measuring the food.

Keeping a Record of the Diet

To keep a record of the diet, one should use a fairly large bound note book. He can rule off the left hand page to conform with the sample diets, one page for each day. On the opposite page of the note book, he can record the amount and kind of exercise taken, the weight and measurements when taken, any special instructions from the physician, a kodak record of the results, and other interesting data.

The table on the next page gives the values of the foods ordinarily used. Any standard table of food values may be followed. These tables will be found to differ slightly in values of protein, fat and carbohydrate content, as foods will differ in value when produced under

different conditions. But this is immaterial, and it is not important which authority is followed so long as one follows that authority.

The accompanying table is simple as it gives the food values always in terms of 100 grams, which makes the proportions easy to compute. One hundred grams is also a comfortable sized portion of food. For example, 100 grams of lean beef is about 3½ ounces or nearly a quarter of a pound. One hundred grams of chicken is equivalent to the drumstick and thigh. Both are quite satisfying portions. It is found that the hunger requirements are much better met by giving larger portions of one or two foods, than by giving little dabs of a greater variety.

If this reduction diet were only a matter of a few days, the person might easily take care of it for himself. But as each ten pounds or so of reduction will require around one month, and as these cases ordinarily require from three to six months for their cure, the patient should be relieved of all thought of selecting, preparing and serving the food. It is enough that the person trying to reduce shall manage somehow to be content with the diet.

Best results are obtained when he takes his meals by himself. He does not see foods that he is not permitted to have and is relieved of that temptation. The sight of tempting foods serves to stimulate the appetite.

A person should, so far as possible, be entirely relieved from the necessity of seeing or handling any food other than that which he is served as his diet. This is what is meant by approximating sanitarium conditions, and it is a virtual necessity in stubborn cases of obesity of long standing.

Exercise Important in Reducing

Exercise contributes to reduction in two ways: it consumes food values that otherwise might be stored up as fat, and it tends to produce harder muscles on which fat will not be so easily deposited in the future. Note how the body has a tendency to deposit fat on the little used abdominal muscles as compared with the arms. Symmetrically developed muscles make for lightness of action, for grace, and for stimulation of all the body cells; these, in turn, make for better health.

Any and all exercises not contraindicated are good. Swimming, walking, horseback riding and golf are particularly useful. Tennis and baseball are too strenuous, unless the physician passes favorably on the heart muscle and recommends them. Overexercise is as dangerous as too little and should be guarded against. If there is a gymnasium available, one should by all means join a class, or he can follow a good system of setting up exercises, such as may be obtained for the phonograph.

The daily work is not sufficient exercise, for there is too great a tendency to use certain

TABLE OF FOOD VALUES

For 100 Gram Portions

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FRESH FRUITS

The following are selected because of their low carbohydrate content. Apples, grapes, prunes, plums and bananas, each have a carbohydrate content of 20 grams or more per 100 gram portion.

	Protein	*Fat*	*CH*
Grapefruit	—	—	5
Strawberries	1	—	7
Watermelon	—	—	7
Lemon	1	—	7
Alligator pear	1	15	7
Peaches	1	—	9
Muskmelon	1	—	10
Pineapple	1	—	10
Cranberries	—	—	10
Blackberries	1	1	11
Orange	1	—	10

FRESH UNCOOKED VEGETABLES

	Protein	*Fat*	*CH*
Celery	1	—	3
Lettuce	1	—	3
Cucumber	1	—	3
Endive	1	—	3
Tomato	1	—	4
Cabbage	1	—	6
Turnips	1	—	8
Carrots	1	—	9
Onions	2	—	10
Potatoes, white	2	—	18

CANNED VEGETABLES

	Protein	*Fat*	*CH*
Aspargus	2	—	3
Brussels sprouts	2	—	3
String beans	1	—	4
Sauerkraut	2	—	4
Tomatoes	1	—	4
Okra	1	—	4
Peas	4	—	10
Corn	3	1	19
Lima beans	4	—	15

COOKED VEGETABLES

	Protein	*Fat*	*CH*
Beet greens	2	—	3
Spinach	2	—	3
Carrots	1	—	5
Turnips	1	—	5
Onions	1	—	5
Beets	2	—	7
Peas, green	7	—	15
Potatoes, boiled	3	—	21
Potatoes, baked	3	—	25

MISCELLANEOUS

	Protein	*Fat*	*CH*
Chicken broilers			
As purchased	13	1	—
Edible portion	22	3	—
Eggs (2 weigh 100 grams)	14	11	—
Egg whites	12	—	—
Egg yolks	16	33	—
Bouillon clear	2	—	—
Beef juice	5	1	—
Gelatine	84	—	—
Sweetbreads	17	12	—
Butter	—	85	—
Milk, whole	3	4	5
Butter milk	3	1	5

MEATS

The following are selected because of their comparatively low fat content:

	Protein	Fat	CH
Roast beef, medium fat	22	29	—
Roast beef, lean	24	10	—
Round steak, lean	28	8	—
Sirloin steak, lean	24	10	—
Tenderloin	24	20	—
Boiled beef, average	26	35	—
Corned beef, canned	26	19	—
Dried beef, canned	39	5	—
Tongue, canned	20	23	—
Pickled tongue	13	21	—
Pickled tripe	12	1	—
Beef, dried and smoked	30	7	—
Veal cutlet, very lean	28	1	—
Roast veal, leg lean	21	4	—
Roast veal, leg medium fat	20	9	—
Lamb chops			
Broiled, edible portion	22	30	—
Broiled with bone	18	28	—
Lamb, leg roast	20	13	—
Pork loin chop			
Lean as purchased	20	19	—
Edible portion	15	15	—
Ham, lean	25	14	—
Brains	12	10	—

muscles at the expense of others which are not used. A well balanced daily program of exercises suitable to the person's age, weight, physical condition and, best of all, to his liking will play a most useful part in the reduction of weight and in the restoration to good health.

Weighing Is Important

Weighing is an important part of the program for reduction. One might say that it almost assumes the proportions of a rite. At the very beginning of the treatment, one should take the weight stripped, if possible. It is a good plan to enter certain measurements of the neck, waist, chest, arms, hips or other portion of the body that one especially desires to reduce. The body weighs the least in the morning before breakfast. If bathroom scales are available, one should weigh himself stripped before breakfast once a week on the same morning. If such scales are not available, he should select a reliable scale at some convenient shop and get weighed once a week on the same scales, with as near as possible the same clothing, and at the same hour of the day.

The weight of the adult body varies as much as two pounds during the twenty-four hours, and the monthly periods of women affect their weight about four pounds. Hence if these directions for weighing are not followed, the weight obtained will be incorrect and misleading. More than that, it will be terribly discouraging to diet faithfully for several days or a week and then to see no results recorded by the scales. The temptation to break diet is very strong at that moment.

Sometimes a person may diet for a week without the scales recording any loss of weight, and some have gone longer on very limited diets without the scales recording the loss of a single ounce of weight. But the next week, the loss recorded would be double the weekly amount or enough to maintain the average reduction for the entire period. The monthly loss of weight is, therefore, more reliable than the weekly.

Once a month, or as each ten pounds of reduction is recorded, one should make a new set of measurements. And what is most convincing and helpful of all, he should make a kodak record of his appearance. He must never forget for a moment that this overweight was months in accumulating and that it is therefore going to take months to get rid of it.

If One Breaks Over the Diet

Breaking over the diet is a thing to be deplored but it does happen sometimes even in the best managed cases of home treatment of obesity. During the treatment, it is advisable to limit social engagements strictly, and especially those afternoon affairs at which the group does not deem it hospitable unless the guests are served with rich foods or sweets. If the person has any difficulty in resisting these dainties, he had far better make excuses and remain at home. Once such breaking over may set to naught several trying days of dieting.

Occasionally it will seem almost obligatory to take other than the accustomed foods—a chance picnic, an unexpected dinner or banquet that one must attend. Without the person being aware of what has happened, he has tasted of forbidden foods. Once tasted, the temptation to take all that he wants is more than most persons can resist.

Under such circumstances there is just one thing to do. One should excuse himself within twenty minutes after the meal and repair to the bathroom; there he may drink rapidly several pints of warm tap water and, with the time honored method of finger in the throat, proceed to empty the stomach completely. If he does not, he will wish he had. One cannot diet strictly for some time and then suddenly load the stomach with rich and unaccustomed foods without its rebelling. Breaking over the diet is likely to be followed by sour stomach, fermentation and gas in the intestines and a sleepless night, if nothing worse.

One system of reduction is based entirely on this emptying of the stomach within twenty minutes after each meal. No doubt it would be effective, but it is not likely ever to become popular. However, if one breaks diet, that is the price he pays for it.

A sluggish bowel is one of the things to be guarded against when one is on a reducing diet. The bowels will not move as freely as ordinarily because of the comparatively small quantity of

food taken. But if there is a tendency to sluggishness, mineral oil will be found very helpful. Mineral oil with agar is even more efficacious. Occasionally a laxative may have to be taken. The kind and amount had best be left to the physician. One should avoid purgatives, for they are not required and they may do more harm than good.

Should Have Doctor's Advice

The discussion of the part the doctor plays in the home treatment of obesity has been left to the last because it is the most important. No doubt one can reduce without the assistance of a physician, but without a doubt one will fare much better with his services.

During the course of the treatment there will come up a great variety of questions which an article like this cannot anticipate and on which a person will want competent advice. Any one on a diet is going to need some one to cheer him when the scales seem to be discouraging and the diet grows monotonously weary. He is likely to need some one behind him when in spite of all his good intentions he sometimes feels that the game is not worth the candle.

In an article like this, it is possible to give only the barest outline of the treatment of obesity. No article can anticipate the different requirements of foods and treatment caused by different ages, temperament, and environment. No one can know the condition of the person's heart, kidneys, blood pressure and nervous system, all of which may have to be taken into consideration at some time of the treatment.

So while one is about this game of reducing, he had better make clean and thorough workmanship of it. He should ask his doctor for a complete health examination. If it is required, he should see the dentist for the teeth, the oculist for the eyes, and have such other examinations and treatment as the physician advises. Whatever is found to be out of order, he should have put in good condition. He should build up his muscles with a series of exercises so that the carriage is improved, and the step is lightened. If he will do this, he will have accomplished much more than the reduction in weight. He will regain health and youth and will add many happy, useful years to his life.

The following recipes will be of aid to the person on a diet because they are fillers with no food value.

MAYONNAISE

1 egg yolk
Vinegar, seasoned with mustard to taste
4 cups mineral oil

Beat egg yolk until light and creamy. Add few drops of vinegar, then beat in the oil a few drops at a time. Continue until all the oil has been added. If mixture becomes too thick, add few drops of vinegar.

THOUSAND ISLAND DRESSING

To the above mayonnaise, add an equal part of tomato catsup or chili sauce and one sour pickle chopped very fine. The small amount of this condiment which is used is inconsequential.

BRAN WAFERS

3 cups bran (washed)
3 tablespoonfuls cellu flour
3 tablespoonfuls India gum
1 tablespoonful cinnamon and nutmeg
2 tablespoonfuls vanilla
Saccharin as desired

Use water enough to make paste to spread on flat tins; cut in squares for serving before baking; bake in slow oven (250 F.) about 3 hours or until quite dry and crisp.

CELLU COOKIES

2 cups cellu flour
¼ gr. saccharin
Nutmeg
Coffee
1 tablespoonful India gum
Cinnamon
2 tablespoonfuls oil

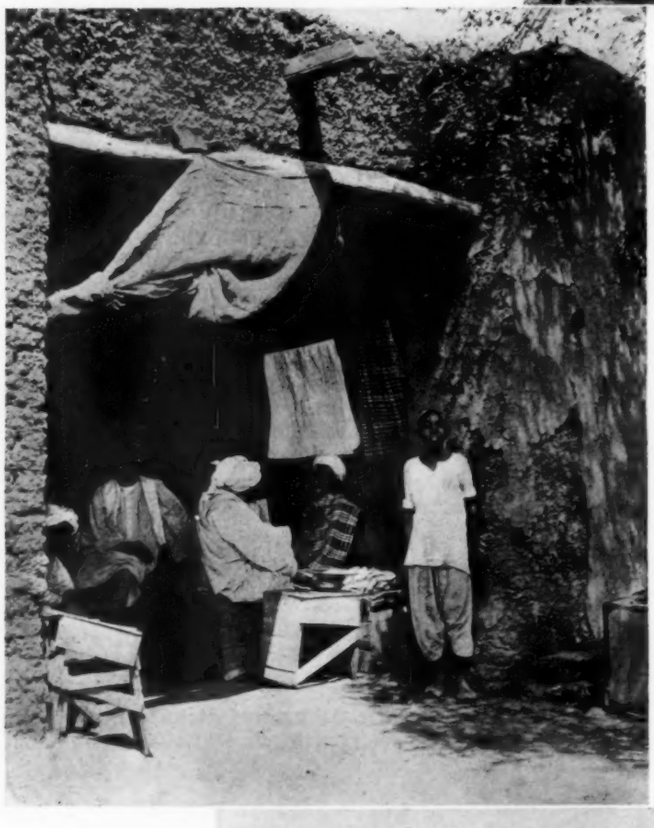
Mix dry ingredients. Add oil. Mix with coffee to make a dough. Beat until smooth. Roll or pat into cookies. Bake in slow oven.

AGAR JELLY

Agar agar 7 grams
1 quart water

Boil water and agar until agar is dissolved. Remove from fire. Add saccharin and flavoring—lemon, almond, coffee or mapleine.

Houses the World Over



The stone hut (above) is a peasant's house in the region of the Black Sea. Stones weight down the fragile roof, and what light enters the dwelling comes through the one door and chinks in the wall.

Built of a solid mass of mud, tightly packed together, is this home in Tunis, northwest Africa. A curtain is its only door, and its single room serves as kitchen, sleeping and living quarters and barber shop, for the owner is a barber.

The Kafirs' native village is called a kraal and is composed of the chief, his family and dependents. The structure below, which resembles a pile of matting, is the home of the chief. The dependents occupy the small, unroofed huts made by binding together tall grasses. These are probably the most primitive people who live today.

Photos by Mirzoff

Goiter

WILLARD BARTLETT

GOITER is as old as the human race, and when of appreciable size, it probably never escaped notice. Every day we see women with goiter and scarcely realize that the disease may cause death, or think of its many other malign tendencies.

Any noticeable increase in size of the thyroid gland in the neck is known as goiter, unless it accompanies periods of stress in the life of a woman, such as adolescence, pregnancy, or change of life, when a transient need for the secretion of the thyroid meets nature's response by a *temporary* growth of the gland. A compensatory change of this kind calls for no medical treatment.

Goiter in Childhood

In goitrous regions the young of all the lower animals are frequently born with a tumor in the neck. Goiter develops not infrequently in the pregnant mother. Her blood nourishes the embryo indirectly, hence it is not a far cry to assume that thyroid enlargements take place during the life of the child within the mother's body. Probably more than half of these goitrous infants die at or shortly after birth. Some such goiters press so hard upon the windpipe that the infant is unable to get air enough to sustain life.

All pregnant women living in goitrous districts should be treated with iodin. By this means the birth of goitrous babies may be greatly decreased and the attendant birth accidents prevented.

There is no iodin in the thyroid of a newborn child, because the mother's gland is always hyperactive at this time and contains a rich supply of this precious element. It is imparted to the offspring through the mother's blood before birth and through her milk during the nursing period. Cow's milk contains practically no iodin, but a calf's thyroid is active, contains iodin and does not depend on the maternal milk for it. This fact is one of the reasons why no infant does so well on cow's milk as when breast fed.

After the child commences to take food other than milk, its thyroid becomes active and then contains all the needed iodin when circumstances are normal and health is good. The development of the child into manhood or womanhood is due directly to the influence of the sex organs, but these do not function unless stimulated by the secretion of the thyroid. This explains many things that would otherwise not seem clear to us. Since an overactive thyroid increases somewhat in size, we realize why this occurs at the time of puberty when the sexless child changes into the distinctive masculine or feminine type early in the teens. In the same way we explain slight enlargement at menstruation, conception and during pregnancy.

The thyroid gland to some extent governs growth and functional activity in general, as well as disintegration and elimination, regulates our oxygen intake and our carbon dioxide output, helps to maintain our red blood cells and our white blood cells, and to regulate our temperature. Its secretion has a profound influence on our two nervous systems, especially the sympathetic, which controls the digestive apparatus and blood vessels and, hence, influences our blood pressure. It is interrelated to all of the other so-called ductless glands, pulling together with some of them and working as an antagonist to others.

The amount of iodin in the thyroid varies with the seasons. When its content is high the thyroid is most active; it is least so in January, February, March, and April, no doubt largely because we are cut off to a great extent from the

How Goiter Troubles Us

Goiter has five major ways of damaging the sufferer.

1. It often grows to such an extreme size as to be a source of embarrassment.

2. It may grow down into the chest or, when up in the neck, may compress the windpipe, the great blood vessels supplying the brain, and a number of other important structures in this vicinity.

3. It may become a source of poison so virulent as to cause rapid loss of weight, heart damage, mental aberration and numerous other extremely dangerous complications (hyperthyroidism).

4. It may become cancerous and result fatally unless removed promptly.

5. It may, by inheritance through one generation after another, result in the loss of all that is fine physically as well as mentally and spiritually for all the people inhabiting a wide area.

fresh vegetables, sea foods, and outdoor iodin-containing air along the coasts to which we look for the greater part of our iodin supply.

After the individual has reached the age of 40, the walls of the arteries leading to the thyroid commence to thicken, its blood supply grows less and less and it atrophies with increasing age. Thus we are prepared for the statement that the menopause may result from its decreased activity, and in both sexes, as age advances, evidences of lack of thyroid activity are manifested in ways too numerous to mention. As a matter of course, then, the amount of thyroid tissue which is indispensable to wholesome existence varies with age, more of it being employed during the period of adolescence while we live and grow at the maximum speed.

During child life the exophthalmic variety of goiter is particularly menacing. This type of goiter with its protruding eyes, rapid heart, intoxication, and other serious symptoms demands prompt and serious medical attention.

Simple Goiter Is Commonest

The widely disseminated form is simple goiter. Probably most often its presence is explained by iodin deficiency. This, however, is only the immediate cause for, to be perfectly accurate, the other reasons for its occurrence are absolutely unknown. The mere enlargement of the gland is in reality the result of overwork in endeavoring to pick up a normal amount of iodin from a deficiency of this substance in the blood and may be compared to the increase in size of a muscle due to rather constant and excessive use.

A few of the celebrated endemic goiter areas are the Alps, the Himalayas, the Andes, the Hartz, the Cascade region of Oregon, Washington and British Columbia, to say nothing of the very important area of the Great Lake basin. There are many other small areas deserving of mention, both in our country and abroad, as a territory of nine counties in Virginia in which 12.68 per cent. of the school children, practically all of them girls, were found to have goiter.

The incidence of this form of the disease in the United States is brought out in a most instructive way in the government reports on the "Defects Found in Drafted Men" published since the great war. There were about seventeen times as many goiters found inland as along the sea coasts per thousand men examined. There is no question of the influence of iodin in this connection. Reference to the government's map shows in no uncertain way the high incidence of goiter in our northwestern and Great Lakes states with their scarcity of iodin; it also shows a gradual shading off through four successive zones until we reach our southern states which border the Gulf of Mexico where there is very considerable iodin in soil and water, and as one might expect, very little goiter is apparent.

When only 1 per cent. of our population had been examined by the draft boards 20,618 goiters had been found, and 3,100 men had been rejected for the simple reason that their necks were too large to permit of them wearing and buttoning the regulation army collar. We know there is little iodin in the highest ground farthest inland, hence we are not surprised at the statement that 3.64 goiters per thousand men were found on the deserts and 14.70 per thousand men in the mountains.

The highest incidence was among our Scandinavian population. Of course, it must be remembered that there are more Scandinavians than persons of other nationalities among our northwestern inhabitants of foreign birth; still, this has been taken into consideration in computing averages. Our European immigrants of whatever nationality were found to produce more goiters than our native white population, which is perhaps accounted for by the fact that we have bred a sturdier class in this new country than the product of ages of poverty and oppression from which our immigrants are drawn.

Where Iodin Is Obtained

Iodin, which sells at wholesale in the United States at five to six dollars a pound, depending on where it is purchased, is one of the elements which is absolutely indispensable to the well-being of man and the lower animals with which he is familiar. It was discovered in 1812 by Courtois while he was studying the products of burnt kelp. It does not occur in a free state, but is combined with other elements. We require it only in most minute quantities, but inexpensive as it is, it is quite *unequally* distributed in the natural combined state, hence the populace of certain wide areas is suffering and dying for the want of it.

An organic compound of iodin, first recognized in 1895, constitutes the active principle of the thyroid, the healthy gland being said to contain about 0.1 per cent. of it. If for any reason the individual supply of iodin runs low so that the gland cannot pick it up from the blood in this concentration, then immediate overgrowth or overactivity of this structure supervenes, an increased amount of blood begins to flow into the gland, its component cells begin to grow and multiply and, shortly after a decrease in its iodin reserve has taken place, the malady which we term goiter has become apparent. Most authorities agree that 0.1 mg. of iodin per day is sufficient to prevent goiter in school children, an almost infinitesimal amount, to be sure.

Persons and animals get their protecting iodin in a variety of ways directly or indirectly from

Mother Ocean, the greatest potential reservoir of it. Those who inhale the spray from the ocean, seas, or great salt lakes absorb in this way a very considerable amount of it, while iodin has been found in rather considerable quantities in the rain water three miles distant from the Atlantic coast. In contrast with this, rain water from the Great Lakes region contains only 1/40 as much as that which has washed the atmosphere near one of the five greatest bodies of salt water. It is therefore self-evident that we receive very much less iodin from our water and air in the Great Lakes region than do those who live on the coasts.

The same is true of our supply which is received *indirectly* from Mother Ocean, for the iodin of sea water and air is taken up and stored in all the ocean plants and its myriad of edible fish, while the plant and animal life sustained by fresh water hoards up no such supply for us. The largest amount that is stored up in the vegetable kingdom in the greatest concentration is found in the giant seaweed known as kelp. Since this has become common knowledge, a weed which seemed to have as its only function the clogging up of harbors and commercial roadsteads has now become a thing of use and value to man. It may be added that Chile saltpeter and some inland salt deposits to which other references shall be made constitute our only other available source of supply of this exceedingly valuable element.

Goiter Rare Along Gulf of Mexico

Even though most of the iodin in the world is in the seas, where its concentration is said to be 100 times that of the streams flowing through goiter-free districts, these latter mentioned contain very much more than does the fresh water in those parts of the world where the only source of iodin is the very slow weathering of igneous (volcanic) rocks washed by it.

But it was not always thus, for geology tells us that a greater part of the United States came up out of the water between the Cambrian (the earliest group of rocks possessing a connected suite of fossils) and the Pliocene (the era in which land masses were approaching the configuration they show today) periods after having soaked for countless ages in iodin-rich sea water. In this way it received an equal distribution of the precious element.

But in the course of subsequent ages, after the continents had risen out of the sea, the rains gradually washed out the iodin from rocks and land to return it inevitably to the ocean from which it was originally taken. The region now occupied by our southern states was the last portion of North America to come up out of the waves at a comparatively recent geological period and has in consequence not yet had quite all of its iodin washed back to its original source. Hence, one is not surprised to note along the Gulf of Mexico that goiter is almost never seen. The story of iodin, its source, its distribution and its recovery would be interesting enough if the possession of the precious element were not indispensable; as it is it becomes more than interesting—it constitutes knowledge of vital importance to us.

Studies of Akron School Girls

The administration of iodin to goitrous patients was suggested more than a century ago (1820), but it seemed to have no basis in fact strong enough to make much impression at that time, hence it was never systematically employed until Marine earned undying fame and attracted the attention of public health authorities all over the world to his classical experiments near the Ohio shore of Lake Erie in the heart of the well-known Great Lakes endemic goiter basin. He writes:

> The result of our two and one-half years' observations on school girls of Akron are as follows: Of 2,190 pupils taking 2 gm. of sodium iodid twice yearly, only five have developed enlargement of the thyroid, while of 2,305 pupils not taking prophylactic iodin 495 have developed thyroid enlargement. Of 1,182 pupils with thyroid enlargement at the first examination who took the prophylactic, 773 thyroids have decreased in size, while of 1,048 pupils with thyroid enlargements at first examination who did not take prophylactic only 145 thyroids have decreased in size. These figures demonstrate in a striking manner both the preventive and the curative effects.
>
> The method of administering iodin is of little consequence. The important thing is that iodin for thyroid effects should be given in exceedingly small amounts and it is believed that most of the untoward effects recorded are due to excessive doses employed, or, more concretely, to the abuse of iodin.

This work of Marine is now regarded as the foundation on which we are building up a definite and successful system of preventing endemic goiter, to say nothing of its cure in many instances.

It must not be thought after reading the absolutely brilliant result of Marine's work that it is safe for any one to go to a drug store with the idea of taking iodin at will. Its administration must be carried out under supervision. There are three definite possibilities, all of them fraught with dangers of different sorts.

The abuse of this drug may produce a form of poisoning known as iodism characterized by a skin eruption, running of the nose, headache and other unpleasant manifestations. In the second place, iodin is never given when the goiter is nodular, especially if the individual is in middle life, because there is a great risk of turning a quiescent lump in the neck into a highly toxic overactive gland which is the most insidious destroyer of hearts known to us. Then, there is a third possibility that iodin treatment may lead to the neglect of surgery for a goiter

that is really becoming cancerous or at least obstructing the windpipe.

A qualified and conscientious physician sees in a goiter patient much more than a tumor of the neck. He must, if his treatment is to succeed, take cognizance of the entire individual, since the ramifications of this disease have been shown to affect practically every organ and tissue of the human body.

Iodin and Salt

It has been fairly definitely shown that the absence of iodin in the blood and consequently in the thyroid has more than any other one factor to do with the production of simple goiter. It has naturally occurred to physicians and public health authorities in goitrous areas to supply the deficiency in some manner so general that all of the inhabitants will be assured of getting their normal amount. The suggestion has been made that the public water supply have one of the iodin-containing salts added to it in such quantities as to fulfil this need.

This plan, however, has not been successfully adopted on account of the evident wastage entailed since such a small portion of the total supply is likely to be drunk by the inhabitants of any given community. One would naturally consider the expense of treating the water employed for other than drinking purposes, to say nothing of the fact that the addition of iodin might make it highly undesirable for many uses. The suggestion is one that quite naturally occurs to the investigator who has read of the natural water from a non-goitrous region being diverted into a goiter district, thus curing goiter to some extent and preventing its occurrence to a very much greater degree.

A second suggestion, having the same end in mind, is to add iodin in some form to our table and cooking salt.

Since most of the inland sources of salt contain no iodin, it has been suggested that sea water, which is rich in it, or evaporated sea salt might be used as a substitute for the ordinary varieties. There seems to be no contraindication to its use. It contains nothing incompatible with health and can be filtered as easily as fresh water from inland sources.

This has been done on the California coast, but unfortunately the commercial processes which render the customary profit still leave the iodin in solution in the mother liquid and have in the past rendered an absolutely iodin-free salt. Apparently it would cost something more to carry the process far enough to precipitate out the sodium iodid, which is about five times as soluble as common salt, along with the other ingredients, but surely the additional expense entailed and the consequent higher priced product would be more than justified by the comparatively inexpensive process of adding to our food the element which is absolutely certain to prevent a dreaded scourge.

Some authorities feel that it would be cheaper and just as well for the manufacturer to add commercial sodium iodid to our salt rather than to try to vaporize completely a brine which contains it. This salt certainly is not volatilized by boiling, hence, if added to the food during the process of cooking we are absolutely certain to get iodin, something which might not occur if we depended upon salt on the table for our supply of iodin, because so many of us are not inclined to salt our food after it is once served. This is very true of children who particularly need the iodin during the formative period when goiter can be prevented.

The state of Michigan was, I believe, the first to guarantee the sale of none but iodin-containing salt within her borders. The plan seems to work perfectly and the storage loss is so slight after the addition of sodium iodid as to be a negligible factor.

Consequences of Endemic Goiter

The most serious aspect of widespread goiter, to get away for a moment from the strictly personal point of view, is the economic loss to a community in which goitrous mothers hand down the disease through successive generations. However serious the primary manifestations of the disease may be in endemic goiter, they are mild in comparison with the hereditary consequences which may be produced if the malady is transmitted, since it expresses itself in the second, third, and fourth generations to the cumulative effect that mere goiter in the first is succeeded by myxedema in the second, cretinism in the third, and idiocy and deaf-mutism in the fourth.

Preventive medicine is of avail only in a community sufficiently well informed on its inherent diseases to be able to recognize morbid influence at that early period when cure is possible; therefore, it goes without saying that the inhabitants of a goiter district should know as much as possible about the relations of iodin deficiency at least to this disease; as well as its hereditary tendencies. Otherwise we are bound to experience the economic loss of which we see an example in the Swiss army, depleted as it is to the extent of one sixth by goiter and its complications.

Now one who would pose as a prophet has but to study history, which is ever sure to repeat itself; so viewing the ravages of endemic goiter, for the past 3,000 years on the great plateau of Central Asia, certain mountainous districts of Europe and of South America, an observer of conditions in the United States can by the same token foresee dire possibilities in the outcome of this malady, if unchecked, in our own country.

What to Do in Case of Gas Poisoning

CECIL K. DRINKER

BY THE general term "gas poisoning" we have come to understand poisoning due to carbon monoxid gas. This compound is responsible for more deaths in civil life than any other gas or vapor, but at the same time the action of the gas on the body is quite simple and in a sense benign.

Unlike many of the gases used in the war it is not actively destructive. It does not sear and scarify the tissues, mutilating the victim to a degree incompatible with life. The action is far more insidious. In effect carbon monoxid harms or kills by preventing the individual from acquiring oxygen. When the substance is inhaled it acts like a mounting wall between the victim and his supply of oxygen. How does this occur?

Air, even in badly ventilated buildings, contains invariably just about 20 per cent. of oxygen. The remainder is nitrogen together with minimal quantities of other gases. This oxygen carried into the lungs as part of the air during inspiration passes over into the blood and is carried by the blood through the blood vessels to the tissues in which it is a necessary factor for life.

The oxygen does not travel as bubbles in the blood but combines chemically with hemoglobin, the red coloring matter of the blood. This combination is easily made as the blood goes through the lungs and when the body tissues are reached, as the blood courses through the finest vessels, the combination breaks down, oxygen being taken out by the tissues and the deoxygenated blood returning to the lungs for a further supply.

Builds Wall Between Victim and Oxygen

Anything that interrupts breathing endangers life or kills by preventing this constant renewal of oxygen supply. That is clear enough and it should be equally clear that anything which prevents the necessary combination of hemoglobin with oxygen must endanger or kill for the same final reason, namely, deficient oxygen supply.

Carbon monoxid possesses the peculiar property of combining with hemoglobin with 300 times the readiness of oxygen. When this combination occurs the blood loses a degree of its power to carry oxygen corresponding exactly to the extent to which carbon monoxid has usurped the oxygen position in union with hemoglobin. This is why we say that the carbon monoxid slowly builds a wall between the victim and his air, or more exactly, between the victim and the essential part of this air, the oxygen.

If one appreciates these matters it is easy to trace the course of events when a room is entered in which there has been a gas leak. The gas delivered to our homes contains variable amounts of carbon monoxid. Let us suppose enough gas has escaped and is escaping to give a concentration of carbon monoxid of 1 per cent. in the air breathed. The prospective victim, and he is sure to be one if he stays in such an atmosphere, now takes in 1 per cent. carbon monoxid and 20 per cent. oxygen. Owing, however, to the fact that the carbon monoxid enters the blood 300 times as readily as oxygen even this apparently low concentration of carbon monoxid is extremely dangerous and it can be said with entire precision that such an atmosphere will kill a healthy adult in less than ten minutes. Indeed so great is the affinity of carbon monoxid for hemoglobin that one tenth of 1 per cent. in the air will surely kill if breathed for a long enough time.

If a person who has breathed carbon monoxid and so carries it in his blood goes into the fresh air where there is no gas contamination, the carbon monoxid escapes from his blood as it passes through the lungs and is exhaled. This release of carbon monoxid leaves the blood quite normal and oxygen carriage goes on again as well as ever.

Sources of Gas Poisoning

The rate at which carbon monoxid is given off can be greatly increased if high concentrations of oxygen are breathed. Twenty per cent. is the highest concentration in which we can get oxygen from the air. If, however, we give oxygen from a tank it can be made to reach the lungs in very high concentrations and under these circumstances carbon monoxid is, as it were, crowded out of the blood and eliminated from the body in the shortest possible time. The bearing of these facts on treatment is clear and will be discussed under that heading.

In the United States the gas delivered to our homes may contain from 4 to 30 per cent. carbon monoxid. Many of the deaths reported in the papers are due to this carbon monoxid in manufactured gas. Defective and cheap fix-

tures, flexible tubing, gas cocks within easy reach of small children and home-made efforts of plumbing are the great sources of accidental escape. It requires little intelligence to avoid such possibilities of danger.

There is a source of gas escape possessing a certain subtlety and deserving comment. An old-fashioned gas-fired water heater of the type shown in the illustration (Fig. 1) was lit in proper fashion in a closed bathroom. The occupant of the bathroom was killed. There were no leaks in the piping and the flame was going normally. The occupants of the house could not understand the accident and were unwilling to blame the heater. What happened is easy to explain. The gas flame striking the copper surface cooled by water was itself chilled, and incompletely burned gas slid along the surface of the heater and escaped into the room. A dangerous concentration of carbon monoxid in the air of the room soon occurred and the man was killed.

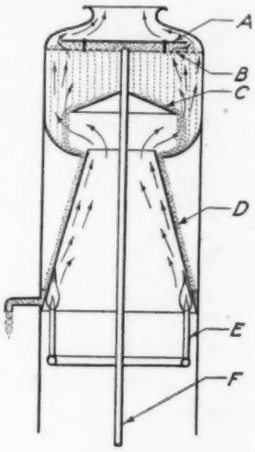


Fig. 1.—A gas-fired water heater of old type illustrates escape of unburned gas. The gas flames E striking the cold surface D are chilled. Combustion is incomplete and unburned carbon monoxid escapes from the top of the heater to the room.

Wherever gas flames strike cold surfaces there will be some escape of gas and in water heaters the surface of which is kept cool by the flowing water this is often very considerable. The remedy is simple and certain. Such appliances should always be provided with a flue. One would not think of lighting a fire inside a house without a chimney to carry off the smoke and he must not install gas appliances for heating water or gas flames of any considerable size without ventilating flues.

Garage Accidents Are Frequent

Carbon monoxid accidents in garages have become increasingly frequent. The exhaust from an automobile engine contains from 5 to 9 per cent. carbon monoxid. A Ford car running on an ordinary mixture in a closed single car garage can provide an atmosphere fatal to a man in five minutes' time. The degree of concentration is, of course, conditioned by the ventilation of the garage but obviously no one should dare to warm up an automobile or any type of gasoline engine except under the freest sort of ventilation.

Finally, carbon monoxid enters the air about stifled and low burning fires. The author Zola was killed in this way. He went to sleep in an unventilated room containing a coal stove arranged to burn low. Under these circumstances carbon monoxid is given off and in his case enough entered the air of the room to cause death. Firemen and persons overcome in smoke-filled houses in which the fire has been stifled usually owe their trouble to carbon monoxid rather than to the irritating and obvious constituents of the smoke.

Pure carbon monoxid has no odor, does not cause sneezing or discomfort. Its presence is suspected by the company it keeps. Smelly hydrocarbons in illuminating gas, sulphurous fumes from badly ventilated coal fires and acrid substances in gasoline exhaust, all give warnings of danger. Unfortunately the sense of smell is easily dulled and if one is in a room where an odor mounts slowly, he often smells nothing at all.

Under such circumstances headache, usually of throbbing sickening type, is apt to be the first symptom. With it there is apt to be nausea and dizziness and then a rather abrupt unconsciousness. Unfortunately none of the early symptoms is certain to occur and the victim may fall unconscious without realizing that anything is wrong.

In the early stages of unconsciousness the breathing is more vigorous than normal. As the process goes on it becomes shallow and ineffectual and death is due to the cessation of breathing, the heart beating well at the moment of respiratory stoppage. When found, victims are usually breathing fairly well, the final period of weak and ineffectual respiration being ordinarily short and the chances for finding individuals in it being proportionately reduced.

When a person poisoned by carbon monoxid stops breathing he is in a different situation from that of the victim of electric shock or drowning. He has accumulated carbon monoxid and he must get rid of it in order to become normal again. In electric accidents and in drowning, on the other hand, the victim is often entirely sound except for failure of ability to breathe. If he can start breathing he will be all right but the gassed victim depends on breathing to get rid of carbon monoxid and to tear down the wall which this substance has formed between him and the oxygen he needs. It is at once evident that remedial measures have more of a task in gassing than in electric shock and drowning. What these measures are and how they are to be applied is the next subject for consideration.

Treatment of Gassing

One must endeavor to sustain the condition of the victim and to get the carbon monoxid out of the blood as rapidly as possible. From what already has been said it is clear that this means artificial respiration if the breathing has stopped, and if breathing is going on, measures designed to increase its volume and to bring

more oxygen into the lungs. The latter consideration is the essential accomplishment of the inhalation treatment.

The following measures are a somewhat amplified expression of the directions for treatment published by the commission on resuscitation from gas poisoning and issued by the American Gas Association. This commission was national in representation and gave the problem the fullest and most impartial consideration.

1. *Get the man out of gas.* When a man is overcome by gas, the first thing to do is to get him into fresh air quickly. Fresh air does not mean out of doors in cold weather. Many men have walked from a warm room containing gas to collapse in the cold outside air. Take the patient to a room free from gas and comfortably warm. Be quick, but don't be unnecessarily rough. Remember you are dealing with a human being.

If he is unconscious, place him on his belly in the position shown in Fig. 2. If the patient is not breathing or his breathing stops, start artificial respiration at once by the prone pressure method. Don't wait for apparatus or anything or any one else. Get to work with your own hands. A delay of even a minute may be fatal. If the patient is breathing, wrap him warmly, lay him on his belly as in Fig. 2 and give him an inhalation (to be described later).

2. *Watch an unconscious man every minute.* His breathing may stop. If it does, start artificial respiration again immediately.

A man who has been even slightly gassed should not be allowed to make any exertion. Keep him lying down. If he must be moved, carry him. The worst thing that can be done is to get him up and walk him around, as has been done sometimes. It may injure his heart or even kill him. Keep him on his belly as long as he is unconscious. This may prevent his choking; in this position artificial respiration can be begun instantly if necessary; the belly position may also prevent a later pneumonia.

3. *Give artificial respiration by the prone pressure method.* Follow these instruction even if patient appears dead. As soon as the patient is clear of the gas quickly feel with your finger in his mouth and throat and remove any foreign body, such as tobacco or false teeth. If the mouth is tightly shut, pay no more attention to it until later. Do not stop to loosen the patient's clothing, but immediately begin actual resuscitation. Every moment of delay is serious. Proceed as follows:

(1) Lay the patient on his belly, one arm extended directly overhead, the other bent at elbow and with face to one side, resting on the hand or forearm, so that the nose and mouth are free for breathing. (See Fig. 2.)

(2) Kneel straddling the patient's hips with knees just below the patient's hip bones or opening of trousers' pockets. Place the palms of your hands on the small of the back with the fingers over the ribs, the little finger just touching the lowest rib, the thumb alongside of the fingers; the tips of the fingers just out of sight, as in Fig. 2.

Fig. 2.—Position in which patient should always be placed and kept until conscious; also first position for operator starting artificial respiration.

Fig. 3.—Second position of operator giving artificial respiration.

Fig. 4.—Third position of operator giving artificial respiration.

(3) While counting *one, two,* and with arms held straight, swing forward slowly so that the weight of your body is gradually, but not violently, brought to bear upon the patient. (See Fig. 3.) This act should take from two to three seconds.

(4) While counting three, swing backward so as to remove the pressure, thus returning to the position shown in Fig. 4.

(5) While counting *four, five*—rest.

(6) Repeat these operations deliberately swinging forward and backward twelve to fifteen times a minute—a complete respiration in four or five seconds. Keep time with your own breathing.

(7) As soon as this artificial respiration has been started, and while it is being continued, an assistant should loosen any tight clothing about the patient's neck, chest or waist. Keep the patient warm.

(8) Continue artificial respiration without interruption until natural breathing is restored, if necessary four hours or longer, or until a physician declares rigor mortis (stiffening of the body) has set in. If natural breathing stops after being restored, use resuscitation again.

4. *The inhalation treatment.* If there were appliances which could be relied upon to pump

oxygen into the lungs it is obvious that they would have direct usefulness in gas poisoning. This is exactly what such devices as the pulmotor and lungmotor are intended to accomplish and do not do. In using such machines a mask is placed over the patient's nose and mouth and air mixed with oxygen or, in the case of the lungmotor, oxygen alone is pumped into this mask. If all is well, some of this oxygen passes through the nose and mouth down into the lungs and then on the suction phase of the appliance it is drawn out mixed with carbon monoxid and expelled into the air.

Careful examination by qualified experts has shown that neither the pulmotor, the lungmotor nor any other device operating in this way can be relied upon. Indeed, the last commission reported that such apparatus has led to the deaths of more persons than it has saved.

Recognizing, then, that no device existed that could safely be relied on to blow oxygen into the lungs, Professors Henderson and Haggard of Yale University devised what is known as the inhalation method of treatment. This treatment depends for its effectiveness on the fact that carbon dioxid is the strongest stimulant to breathing known.

This gas is the commonest of the body waste products. It is constantly present in the blood, being collected from the tissues, and is given off from the body at every exhalation. Unless breathed in very high concentrations, above 10 per cent., it is quite harmless having little effect other than greatly increasing the rate and depth of the breathing.

Professors Henderson and Haggard took advantage of the fact that if carbon dioxid is added to the air so that the concentration becomes 5 per cent., breathing increases at once and quite automatically to about triple the previous volume. If now pure oxygen is mixed with the carbon dioxid so that we have 95 per cent. oxygen and 5 per cent. carbon dioxid, the person breathing the mixture immediately increases his breathing because of the carbon dioxid and at the same time introduces a high concentration of oxygen into his lungs. This latter situation is the most favorable one that can be provided for getting carbon monoxid out of the blood.

The inhalation treatment requires apparatus since one can not administer oxygen and carbon dioxid by haphazard methods. Inhalers of three different makes have been approved by the resuscitation commission and such tested devices are in the hands of gas companies, police and fire departments throughout the country.

If a person is confronted by a gassed case he should have some one telephone for help, preferably to the local gas company, but he should stay by the patient and give artificial respiration if breathing stops or becomes alarmingly weak. Intelligent work may save a life.

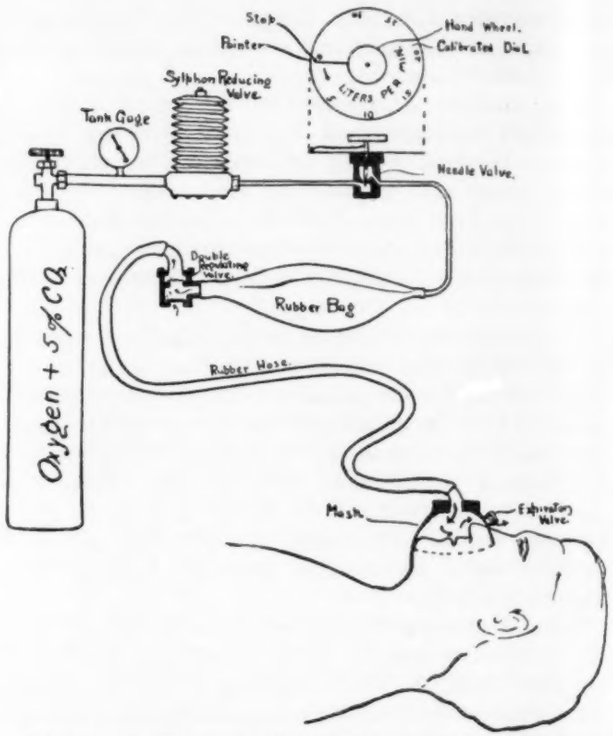


Fig. 5.—A diagram of the H and H inhalator, the first of such devices officially approved for use. The oxygen-carbon dioxid mixture is contained in a tank from which it is delivered to a rubber bag. The victim breathes the mixture from this bag through a hose connection and face mask. The actual machines are contained in boxes a little larger than a dress suit case and easily portable.

5. *Take care of the patient.* The following suggestions as to care should be followed:

(1) Keep the patient warm. Every precaution must be taken to prevent a gas patient from becoming chilled, for this means a strain on his already weakened vitality and may be fatal or help to cause pneumonia. Wrap him in blankets and use hot water bottles or hot bricks. You can fill a hot water bottle from the radiator of an automobile. Be careful to protect the patient from burns by hot water bottles or bricks against the bare skin. An unconscious man has no way of telling you when he is being burned. A burn may be worse than the after effects of the gas.

(2) Remember always that the most important thing is to see that the patient continues to breathe. If he stops breathing, don't wait for blankets or hot water bottles. Start artificial respiration.

(3) Never give an unconscious man anything to drink. It may choke him. Never give whisky, for it acts on a man in much the same way as gas. Hot black coffee is excellent if the man is conscious enough to drink it. When the patient has become conscious keep him wrapped up warmly. He must be kept quiet. He may want to get up or struggle. Keep him down. After he is conscious, turn him on his back if that is more comfortable, but keep him lying down for at least six hours. Even a little exertion is bad and a gassed man may collapse if he tries to walk.

(4) After the patient is conscious, it is the work of the doctor to see that he does not develop pneumonia or other after effects of gas poisoning. If you have done your best and followed these instructions carefully, you have done much to prevent these after effects.

The Child's Teeth

FREDERICK BOGUE NOYES

ALL the teeth together constitute the denture, or the organ of mastication, although the denture has a part in many functions besides mastication, such as speech, breathing and swallowing. Few organs of the body are more complicated in their relations to function than the denture.

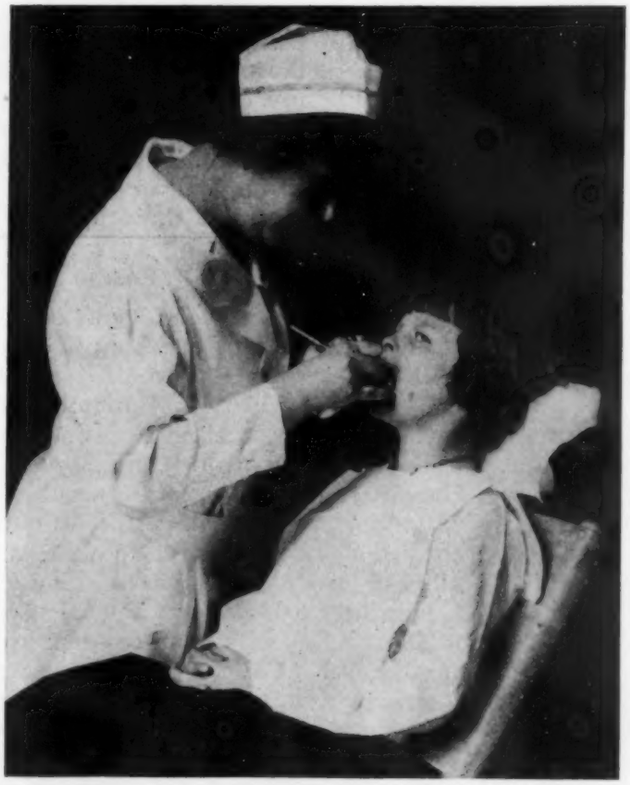
While most persons recognize the value and importance of the denture to the individual, few have any idea of how long and involved is the story of its development.

The teeth begin to be formed about five months before birth, and the denture is not complete in its perfect form until the wisdom teeth (the third molars) have taken their places in adult life.

The story of the development of the denture, therefore, stretches over about twenty years and is beset by so many complications, so many interrelationships of function, so many coincidents of growth, that one is sometimes prone to marvel that a perfect structure ever results. To give some sketchy outline of this complicated but interesting story is the present purpose.

By the time the third birthday comes the baby has all of his temporary teeth in place. They are usually in a nice, white, even row and constitute an important feature in the beauty of the child's face.

Under each of these tiny baby teeth there is imbedded in the bone of the jaw another larger and more powerful tooth developing to meet the increased demands of the growing individual, and back of all the baby teeth three great grinding teeth are developing on each side in each jaw.



Underwood & Underwood

The baby face is round; the adult face is oval. This change comes about largely through the growth and use of the permanent teeth. During the time a child's face is changing from the baby to the adolescent type, he should be frequently taken to a dentist.

The growth of these teeth goes on unnoticed, for it does not affect the appearance of the baby teeth, but it does produce a great influence on the development of the face. Notice the front view of a baby and an adult face. The baby's face is rounder, the adult's longer and more oval. The baby's eyes are in the center of the face, the adult's eyes are between the upper and middle thirds. The adult's nose is longer and the distance from nose to chin much greater. These changes are largely produced by the growth and use of the permanent teeth. Even the child with his pencil indicates this difference in the face and no one mistakes what is intended.

From 3 to 6 the child's growth is less noticed, for his individuality has not yet begun to develop strongly and the family attention is probably centered on a younger brother or sister. So it often, if not usually, happens that the four first permanent molars come in back of the baby teeth and take their places without attracting any attention. These are the largest and far the most important teeth in the permanent set. They are to do most of the work of mastication while the temporary teeth are being loosened and replaced by the new ones. They determine the relation of the upper and lower jaw for the rest of the individual's life.

The action of all the muscles attached to the jaws is balanced around them so that the harmony in the development of the face is dependent upon their normal relation to each other in the opposing jaws. If they do not take the normal relation to each other none of the rest of the permanent teeth can

do so, the efficiency of mastication is impaired, normal breathing may become impossible, and the harmony of the face is disturbed.

It would be impossible to state too strongly the importance of these teeth and the influence of their normal relation on the growth of the individual.

Nature seems to have specially provided for the care of the first molars, which are the keystones in the development of a normal "food mill" and a harmonious face.

Their formation is begun almost as early as that of the baby teeth and the calcification of their crowns is largely completed before birth. Their crowns and grinding surfaces should be entirely completed in spaces in the bone before the child is weaned. That means that nature intended to take no chances in supplying the necessary lime in the food to provide for their formation. They take their places while the baby teeth are still present and working and so they should be guided into normal relation to each other. But the conditions of modern civilization have sadly upset nature's provisions.

First Molars Often Defective

Comparatively few babies are breast fed and even those that are very often have serious disturbances of nutrition in the first year, the time during which the calcification of the crowns of these teeth should be finished. As a result there are imperfections in the grinding surfaces of almost all of these teeth; these imperfections furnish the opportunity for beginning decay.

Dr. G. V. Black states that more than 90 per cent. of the first molars require filling before they have been in place a year, or about as soon as they come through the gum. As a result of these conditions the first molars are more often than any other teeth lost through decay. They frequently are damaged by decay beyond hope of repair before the defects are discovered or parents have even noticed that the teeth have come.

By the time the "six year molars" (the first permanent molars) arrive the baby teeth have been in use for three years or more. They often are worn so that disturbances of function, especially nasal obstruction and other conditions in the nose and throat, cause them to shift their relations to each other, allowing the erupting first molars to lock in a wrong relation to each other. In fact as these most important teeth come in, there is usually a time when very slight disturbances of function may cause them to assume a wrong relation. The effects of abnormal locking are positive on all future development, but their consequences do not become apparent for four or five years.

Because of the immense importance of these teeth every child should be examined at about 6 years of age by some dentist who knows how to preserve their structure and maintain their normal function.

The crowns of the permanent incisors and canines lie in the bone just below and inside of the roots of the corresponding baby teeth. They are much larger than the temporary ones and about the time the first molars are coming they grow rapidly, pushing against the roots of the baby teeth. In this way while their roots are being absorbed the baby teeth are carried upward by the growth of the bone. Spaces appear between them and they separate more and more until when the first lower incisors drop out there are spaces half as wide as the teeth between them. In this way the bone is made to grow to make room for the increased size of the new teeth.

Largely by the growth of the long roots of the canine teeth the face grows longer in the lower third. The nose begins to lengthen and the distance from the nose to the chin increases. First the permanent lower incisors push off the two lower front teeth; then the upper ones go.

The six front teeth are arranged in the form of a V; the upper teeth with the point downward, the central incisors at the point. The lowers are arranged with the point upward between the lower central incisors. As each succeeding tooth comes the ones already in place move further in the same direction, the bone growing to support them. The pressure of the tongue on the inside is balanced by the pressure of the lips on the outside and so all the functions of all these muscles must be normal and in proper balance to keep the teeth in normal relation. Each baby tooth must be in position until the time for it to be shed or else the influence of the coming tooth on the other and the growth of the bone is lost.

Losing the "Baby Face"

Bone and teeth cannot be formed unless the tissues are supplied with lime, so the whole problem becomes complicated by the interaction of growth, function and nutrition.

The first lower temporary incisors should go between 6 and 7 years and the upper incisors immediately after them. At the age of 8 all of the new incisors should be in sight. Between 8 and 9 the first baby molars go one after the other; the second baby molars are lost between 10 and 11, the bicuspids taking their places. While the second bicuspids are coming the great powerful canines wedge their way between the lateral incisors and the first bicuspids. While all this has been going on, the face has changed from that of a baby to that of adolescent youth.

The last baby tooth is hardly gone before the second permanent molars (the twelve year molars) at the back of the arches develop and exert their influence on growth. When they are in place the process continues until the wisdom teeth appear between the ages of 18 and 20.

The Medicine of the Sun

FREDERICK BRYANT

Here follows briefly the history of the discovery and of the achievements that have been made in employing radiations or waves in the treatment of disease, at the first quarter mark of the twentieth century. My qualification for such a venture arises from experience in the study and practice of these remedies, and observations made in a recent visit to the three light clinics of Europe, where an interview was had with Mme. Curie at the Radium Institute in the University of Paris, with Dr. Augustus Rollier at the "sun cure" in Leysin, Switzerland, and with Dr. Axel Reyn at the Finsen Institute in Copenhagen, Denmark.

THE AUTHOR.

I.

THE sun has ever exerted a profound influence on mankind. It was the first object of idolatrous worship. To the race in its childhood the sun was a god. In the old mythologies the sun was personified and given human attributes. For the most part the conceptions of the Greeks and Romans prevailed and the sun was believed to be the chariot wheel of a vehicle driven by the sun-god Phœbus Apollo.

In Holy Writ the sun is a prominent factor. The psalmist of Israel sang of the heavens as a tabernacle of the sun and likened God himself to the everlasting light of the sun. Science has corrected many false impressions and the sun can no longer be regarded with superstitious awe and reverence, yet it remains man's greatest health benefactor. Light is the life of man.

It is a truism that the obvious is frequently neglected. The sun bath was employed by the Romans to a limited extent, yet the writings of the elder Pliny contained this exalted tribute, "*Sol est remediorum maximum.*"

The fathers of medicine had some knowledge of its healing virtues. In the medical awakening of the nineteenth century, light received the last consideration, and yet it was always common knowledge that all forms of life sought it and were quickened by it, that the plant bended its stalk and turned its leaf toward it, that the infirm animal crawled out of its dark hole into its healing warmth. Man's regard for the sun has hitherto been a matter of instinct rather than reason.

Scientists Slow to Study Light

In the latter part of the seventeenth century, Sir Isaac Newton discovered the composite character of light by dividing a beam of sunlight into seven different colored lights. While this was a most masterly achievement, yet nearly a century and a half passed before further progress was made. The next great advance in the study of light rays was made in 1831, when Michael Faraday discovered electromagnetic induction and produced a current of electricity of sufficient tension to make further discoveries possible.

Half a century latter, Sir William Crookes exhausted a vacuum tube to a degree of rarity

The world followed Dr. Augustus Rollier up the Swiss mountain side where now these elaborate sanatoriums at Leysin house thousands who are taking his "sun cure."

capable of demonstrating a very remarkable form of light, when excited by means of Faraday's electromagnetic induction coil. In 1891, Heinrich Hertz, the discoverer of the radio waves, described some experiments from which he concluded that some form of energy actually passed through the wall of the vacuum tube.

Four years later, William Conrad Roentgen repeated these experiments, but with one addition. He covered the tube over with black cardboard, and when objects fluoresced in the surrounding darkness, he realized that he was dealing with a new form of energy or light which penetrated opaque bodies. A new era in the development of light began; it extended man's vision into the inmost recesses of the body and furnished him with a valuable remedy for the treatment of a variety of diseases.

In 1896, stimulated by Roentgen's discovery, Henri Becquerel, physicist in the University of Paris, undertook an investigation of fluorescence in minerals. He accidentally left some uranium salts upon a photographic plate and later, upon developing the plate, found that its coverings had been penetrated. He at once announced that he had discovered in uranium salts a radioactivity akin to the roentgen ray.

The dry plate, therefore, discovered radioactivity, and also (an eminent authority has it) the roentgen ray. It has been claimed that Roentgen left his keys upon a photographic plate in his laboratory while he was conducting his famous experiments, and that the shadow of these keys upon the developed plate led to the great discovery.

Radium Was Successfully Isolated

Eminent chemical talent was now necessary for the most drastic scientific undertaking, that of isolating the hidden radiative mystery. Becquerel did well when he committed the task to Pierre and Marie Curie, the most brilliant chemists in the great university. For two years, poorly equipped and almost without means, they labored in an old neglected building on Rue St. Jacques. The fall of 1898 witnessed their successful isolation of radium and the announcement of the greatest scientific discovery of the ages. It has since come into use in the treatment of a variety of human ills, chief of which is that scourge, cancer.

The same year that Becquerel announced his discovery, Niels Finsen, a Scandinavian genius, published a series of authentic records of cures of lupus (commonly known as tuberculosis of the skin), by the use of modified sunlight. This was the first scientific attempt to apply the sun in the treatment of human ailments. It became permanent. An institution was established which has continued to increase in its efficiency and capacity.

In 1903, Dr. Augustus Rollier went into the Swiss Alps to the small mountain settlement of Leysin and there began the treatment of deep surgical tuberculosis with the unaided sun. This medical venture also endured and has become a well established institution of large and increasing proportions. Both Finsen and Rollier have attracted the attention of the entire medical world because of the scientific nature and the excellent results of their work.

The Spectrum of the Sun

We are entirely dependent upon the sun for radiant energy, both natural and artificial. There is gaining belief among scientific men that the never-ending output of energy of the sun, without which all forms of life would quickly perish, may be attributed to a radium content in the sun.

The length of the wave of the different rays of the sun is the distinguishing factor in their classification, designation and in their ability to act upon the tissues of the body. Each wave length has its own peculiar therapeutic action.

The luminiferous ether is traversed by a great variety of electromagnetic waves of various lengths. The longest of these are the Hertzian—the so-called radio waves, which possess the ability to carry sound, so popularly demonstrated in almost every home. These waves, the longest of which are miles in length, are spaced to the extreme left. They have commercial, but no medical, value. They are invisible.

The next shorter variety of wave lengths brings us to the infra-red, or heat rays of the sun's spectrum. There is some question as to their medical value. While they penetrate the skin, yet they are not the actinic or tanning rays. These invisible infra-red rays make up 85 per cent. of the sun's output.

Next shorter in order of wave length is visible light, made up of the seven colors ranging from red down to violet with a progressive shortening of the length of waves for each color. The wave lengths in this band range from 7,000 to 4,000 Angström units—the Angström unit being the measure or yard-stick of light waves (equal to 10^{-7} mm.). These rays of visible light compose 14 per cent. of the sun's spectrum. Some persons claim that each individual color possesses some healing virtue, but here no extended therapeutic study has been made.

The last division of the sun's spectrum is composed of the invisible ultraviolet rays. They are the shortest and are the true actinic or chemical rays. They do the tanning and probably accomplish the major part of the healing. As they amount only to from 1 per cent. to 3 per cent. of the sun's output and are easily filtered out by slight obstacles, it is readily seen that to receive their full benefit nothing must interpose between the sun and the surface of the body.

Window glass excludes these beneficial rays, and the sun parlor is therefore useless as far as the medical value of these rays of the sun is concerned. Animal experimentation has established these facts beyond dispute.

It has been found, for instance, that a rat will keep well on a diet which would give him rickets when confined to the dark, if he is allowed to expose himself to the sun for one-half hour daily. When exposed to the sun for the entire day under a glass box he develops rickets as promptly as in the dark. Window glass so completely filters out the beneficial rays that it is useless to expose oneself behind it. It is now well understood and accepted that the ultraviolet rays are antirachitic. A child can be cured of rickets as quickly by exposure to the sun as by the ingestion of cod liver oil. It was discovered only recently that cod liver oil owes its antirachitic properties to a radiation of ultraviolet rays; there is a stored energy of the sun in the oil.

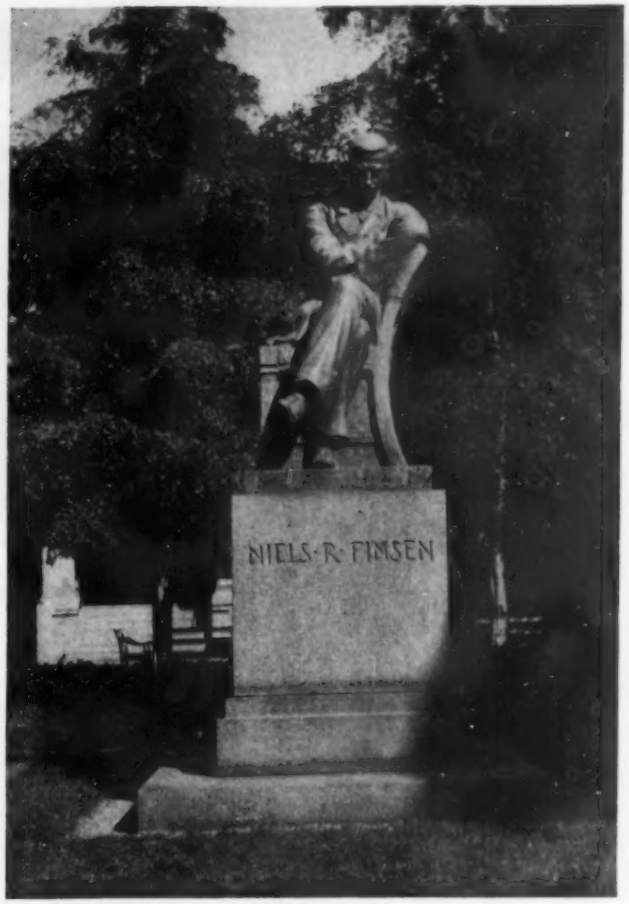
How the Sun Affects Our Food

When food that is not curative of rickets is irradiated with ultraviolet rays, it then becomes curative. From this important observation it becomes apparent that these rays possess the ability to maintain a vitamin balance even when the food supply is deficient in some one of these essentials. Couple this fact with their manifest influence in quickening metabolic activity and synthetically enabling the organism to take up calcium, inorganic phosphates and iron from the food, which it otherwise cannot appropriate, and we begin to realize that a new knowledge of nutrition is at hand.

The slightest fabric of clothes filters out these health-giving rays. Every one is familiar with the fact that the shoulder strap of the bathing suit keeps the skin beneath from tanning. Not only do window glass and clothing filter out these sparse and delicate rays, but also impurities in the air, especially at low levels and in or near commercial centers, act in the same manner. This filter is composed largely of smoke, dust, bacteria, fumes and moisture. Dr. Rollier terms this befittingly the "filth filter of civilization."

Some authorities claim that seashore sun is as curative as that of the mountains, this being due to the powerful reflection from the mirrored surface of the sea. This sun is very rich in ultraviolet rays, for one tans deeply and quickly when exposed to it.

The idea of the stimulating effect or nutrition value of the ultraviolet rays upon all forms of life has of late been taken up afresh and our research institutions are giving it attention. This subject promises much for the future of medicine and is now fortunately receiving the scientific check-up necessary for a permanent foundation.



Among the world's great light clinics is the Finsen Institute at Copenhagen. This statue of Niels Finsen, the thinker, has been erected in honor of the founder. Until Finsen's time, lupus, a dread skin disease, was incurable; the sun lamp which he invented is valuable in treating lupus and many other conditions.

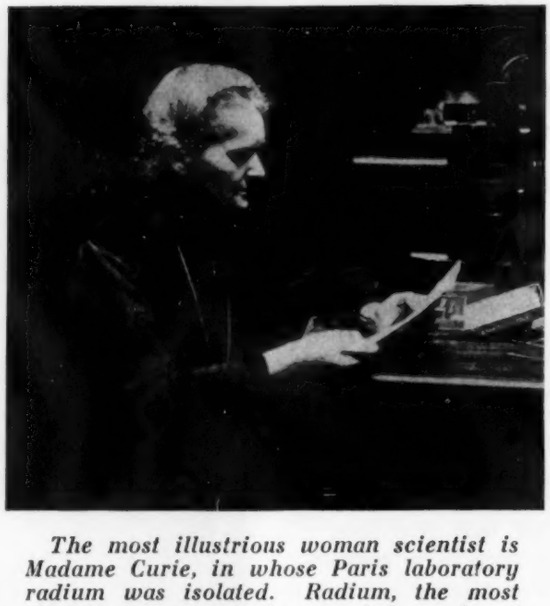
That each wave length has its own specific ability is strikingly confirmed when we consider the bactericidal effect of the ultraviolet rays between 2,800 and 2,500 Angström units. In this range the rays are decidedly destructive to bacteria. Irradiation of the body with this wave length band also seems to impart to the blood an increased bactericidal ability. Is not this our nearest approach to an ideal antiseptic carried by the blood stream to every part of the body to combat and destroy infectious organisms?

Possibility of Sun Cure in Own Home

Herein is explained one of the fundamental virtues of the sun cure, in that it reenforces the blood in its confiict with invading organisms. Research workers and clinicians have recently corroborated one another so fully as to the manifold medical ability of ultraviolet light that the practical medical man is accepting this new therapy with a glad welcome.

It is of interest in this connection to note that a new fused quartz glass has been produced

that admits of the free passage of these ultraviolet rays. Recently Leonard Hill of London displayed a type of glass for which he claims the same virtue. He advocates its use in the upper half of the window; yet to be of value it must be kept spotlessly clean. If by any process such a glass can be made generally available, a sun parlor can be had which will shelter the patient from the cold and the wind, and will enable him at the same time to take the sun cure in his own home in comfort and ease.



The most illustrious woman scientist is Madame Curie, in whose Paris laboratory radium was isolated. Radium, the most gigantic energy yet discovered, is employed in treating that great scourge, cancer.

Some ultraviolet rays have been discovered with a wave length as short as 500 Angström units. This bridges over or charts the rays from the ultraviolet to the roentgen rays, the longest of which just reach this point.

To the extreme right and the last we have the gamma ray of radium, the shortest wave length of them all. The power of penetration of these rays is almost beyond belief. They are the product of a new energy so gigantically powerful that a foot of solid iron does not entirely obstruct their progress.

Sun Helpmate of Medicine and Surgery

The medicine of the sun is assured a permanent place in the therapy of the future, and continued investigation will give each wave length its proper application and improved usefulness. Some of these waves are medical by nature, while others can be made destructive or surgical in their execution. If one at first thought is skeptical of the destructive action of these rays, one has only to recall a very severe sunburn, or witness a frightful third degree x-ray burn or a long exposure to unfiltered radium. These agencies are put forward by their advocates as the helpmates of medicine and surgery, or as the new surgery which has come to assist but not to replace the old.

While these discoveries rightfully belong to the latter days of the nineteenth century, their unfolding and application to human ills have occupied the first quarter of the present century. It is a decided contribution, a whole new chapter in that vital and charming history of medical progress.

What have these discoveries accomplished? We have been given a new conception of the composition of matter; we have been given a new eye or vision into the inner recesses of the body; we have been given a new remedy for a variety of disfiguring, painful, chronic diseases, including that "captain of the men of death," that unconquerable ever-increasing scourge of civilization—cancer; we have been given a new knowledge of nutrition, the nutrition of the sun, but, greatest of all, we have been given a new prophylactic medicine, most powerful and potent, "not made by hands, eternal in the heavens," the medicine of the sun.

Will Aid Health, Stature and Beauty

It is within the realm of sound reason to believe that the scientific and improved employment of the potencies of light will perceptibly diminish disease by their demonstrated curative action, lessen human suffering and pain by their well known analgesic power, increase the span of life, and decrease the great commercial loss due to invalidism and interrupted employment.

Is it not also reasonable to believe since such remarkable improvements of growth can be accomplished in plants and animals by ultraviolet light, that great future improvement in health, stature and beauty of our people may eventually be made? The advent of the sun in medicine may prove no less glorious than that of ether or the microscope.

[Part II will appear in the October issue.]

Ridding the Household of Insect Pests

LOUIS GERSHENFELD

RIDDING an infested dwelling of insects should proceed in an orderly fashion. The average householder generally fights such pests spasmodically. A workable scheme is successful only if executed systematically and continuously, after familiarizing oneself with the habits of the insects to be exterminated and obtaining a knowledge of the method to be employed in disinfestation. One should remember that constant vigilance is necessary in a successful battle with insect pests.

Many of the household insect pests display great intelligence in avoiding poisonous baits and traps, and in general seem to be more or less endowed with the ability to avoid or guard against their enemies. On this account, baits and traps will not always accomplish the work expected of them. Temperature control methods are desirable, but are not used frequently. Fumigation is of value only in the hands of an experienced or careful worker. It therefore remains for the average citizen to depend extensively upon the proper use of contact insecticides.

What an Insecticide Is

Insecticides are powders or liquids capable of killing insects when brought in contact with their bodies.

Bactericides are chemicals or drugs, or solutions of these, that will kill bacteria.

Deodorants are chemicals or drugs that will remove or replace impure or obnoxious odors.

An insecticide may or may not be a bactericide, and in like manner, it may or may not be a deodorant. Most persons do not comprehend this fact fully. They feel that anything that will kill bacteria will kill insects, and vice versa.

Hydrocyanic acid gas and coal oil are very efficient insecticides, but they are not bactericides. Formaldehyde gas is an efficient bactericide and also a deodorant, but it is not an insecticide. Incense and perfumes are deodorants, but are neither insecticides nor bactericides. Carbolic acid and cresol, on the other hand, are examples of chemicals that are bactericides, insecticides and deodorants.

In the selection of an efficient insecticide, the question is generally asked as to whether a powder or a liquid is to be preferred. It is not always possible to give a correct answer. One would really have to know the particular pest for which the preparation is to be employed, as well as the environment which is to be treated. However, it may be said that wherever possible and practical, a liquid insecticide should be used first, followed by a powder. The former can be sprayed or dropped into cracks and crevices and because of the free flow and the vapor which may be produced a greater surface can be reached.

Owing to the rapid evaporation of liquid insecticides, they should be applied freely and frequently. In applying them, one should be sure that a large surface is reached. Spraying or squirting is only to be employed when mopping or the application of the insecticide with a paint brush cannot be used.

How to Use an Insecticide

Many efficient insecticides are frequently proclaimed as worthless by individuals who employ a faulty technic.

A number of simple yet important regulations must be observed at all times when employing chemicals or drugs to kill insects.

1. Be sure that the preparation used is an insecticide.

2. Use a sufficient quantity of the material.

3. Apply the material so that it will come in direct and intimate contact with all of the insects and their eggs.

4. Allow the insecticide to remain in contact with the insects and their eggs for a sufficient length of time to exert its action. If the product evaporates quickly, frequent application is necessary.

5. After one treatment has rid the environment of the pest, additional applications (preferably three successive ones) should be made at intervals of from four to seven days. The more severe the infestation the more numerous and more frequent should the applications be, so as to be sure that the pest and its eggs have been conquered.

With few exceptions, failure to observe one or more of these rules will produce poor results.

Persons frequently ask why there are so many insecticidal preparations in use. There are many factors that influence the employment of one chemical instead of another. One should choose:

1. An insecticide of low cost.

2. One that is not poisonous to man or animals, does not bleach, tarnish, stain or other-

wise affect the furnishings in a household or material to be treated.

3. One that is a stable compound under existing conditions, non-explosive and non-inflammable, if possible.

4. One that requires a short period of time to perform its work.

5. One that does not possess a disagreeable odor.

6. One that is a general insecticide, since some chemicals possess only specific properties in the destruction of one or only a few of the many insect pests that are annoying.

In this country an act, known as the Insecticide Act of 1910, was adopted for the purpose of preventing the manufacture and sale of adulterated or misbranded insecticides. The insecticide and fungicide board of the department of agriculture has been vested with the power of regulating the traffic in disinfectants and insecticides. Its power, however, affects only preparations engaged in interstate commerce. It has no jurisdiction over a manufacturer who makes and markets a preparation in his own state. He is supposed to be under the jurisdiction of his state department of agriculture.

Some Insecticides Are Misbranded

Unfortunately there are some manufacturers who voluntarily or involuntarily market so-called insecticides that will not kill insects. If they have interstate shipments, the insecticide board sooner or later confiscates their product and unless the preparation does exactly what the makers claim for it, the board compells them to remove the product from the market or to modify it so that it will conform with the statements on the label. In the case of preparations made for local sale only, different conditions exist. The state agriculture departments are not always equipped to guard the misbranding or adulteration of insecticides as is the national insecticide board. It is, therefore, apparent that preparations may find their way on the market that are generally inefficient or useless.

If the material is not one that is generally accepted by scientists as an insecticide, but is a branded or trade product, it is advisable to be sure that it is marketed for interstate shipment or manufactured by a reliable concern. One must be sure that his insecticide actually is an insecticide.

In ridding a bed of bedbugs, less of an insecticide is required if the preparation is applied with a brush. With such technic, one is sure that all slats, bands of the spring and tufts of mattress are reached and that the preparation comes in direct and intimate contact with all the pests and their eggs. On the other hand, spraying or squirting is only a guess affair, and through this method there is a greater waste of material. Floors and drawers can be treated best by painting, mopping or wiping the infested area with a cloth or brush moistened with the liquid insecticide.

Buying Springs and Mattresses

Mention has been made of painting the individual bands of the spring and tufts of the mattress in an infested bed. I think only a small percentage of persons ever take the degree of care they should in selecting a spring and mattress. All their attention is given to the selection of the bedroom suite as a whole, which generally does not include the spring and mattress. The choice of the latter is made hastily or left to the care of the merchant making the sale. It is indeed unfortunate that the most important part of the bed is chosen with such little care, especially when one considers the many insanitary types of springs and mattresses that are sold.

The best type of spring is a plain link spring. It has a metal frame to which are attached the helicals (i. e. springy high tention coils) that hold the links to the bands. From the sanitary viewpoint, the woven wire, the wooden frame and the one piece box springs are not satisfactory.

Only a few housewives use covers for their mattresses. The tufts of mattresses are ideal breeding places for bedbugs. It is impossible to say that a bed is free of these pests until every individual tuft is examined. However, it is possible to reduce to a minimum these breeding places by keeping the mattress covered with a suitable inexpensive covering which can be removed conveniently and washed frequently. There is no reason why such a cover should not be made and sold as a part of every sanitary mattress.

[To be continued in October issue.]

How I Use Hygeia in My Class Work

PRIZE LETTER CONTEST

HERE are the four letters that won cash prizes in the teachers' contest on "How I Use HYGEIA in My Class Work." Believing that those connected with the schools will find in the letters submitted much profitable material, a score or more of these letters will be published in the next few months.

In the October issue will appear part or all of the five letters given honorable mention. The contest, which closed July 20, 1925, was participated in by grade, high school and college teachers from all parts of the country. The prize letters follow.

First Prize Letter—$50

OUR book shelves do look mussy, it is true, and many of the magazines have lost their covers. That is because they are used so much, and by young persons who have not learned to be careful and orderly. I should rather have them so, than filed away on tidy shelves out of reach of the boys and girls.

Friday is our Health Club day. After a week studying the textbook and doing laboratory exercises according to the teacher's directions, we have a free-for-all day in which each pupil contributes whatever he chooses in the way of health news. HYGEIA is our mainstay. Of course we have a good variety of books and bulletins to choose from, but HYGEIA makes the attractive appeal. One of the girls reads from it a fairy story that reenforces the lesson we have recently had on foods. Another pupil, more inclined to solid science and less to playful imagination, calls our attention to Dr. Fantus' article on "What We Eat and Why."

A tall girl slips behind a screen and in a few minutes reappears in gymnasium costume. She jumps up on the platform and directs all the pupils to stand in the aisles. Then she leads them in the "Illini Eleven" exercises. The cunning little figures in HYGEIA are not more intriguing than this supple girl as she gracefully goes through the maneuvers.

The pupils join in the game, at first hesitatingly then with enthusiasm. Few even of the boys can rival the erect carriage, the free swing of arms and legs, the flexible bend, touching not only the finger tips but the whole hand to the floor. Then one of the boys, who has read in HYGEIA "The Rules of the Game" by Williams, thinks his twelve exercises are just as good as the Illini Eleven and he puts the class through these stunts.

As the pupils resume their seats one of them steps to the front with a flaming advertisement of a nostrum, which he has found publicly displayed. He points out how speciously it gets the reader's attention by a pseudoscientific appeal and the rehearsal of cures it has accomplished. Then he turns to a page in HYGEIA and tells us what Dr. Cramp has to say about this fraud. Other pupils join the discussion with instances of good money wasted on "patent medicines" that produce no cures.

One of the boys puts the class through exercises.

An enthusiastic lad rushes up to the book shelf and finds a copy of HYGEIA in which he has seen an exposure of the "Big Muscle Boys," and he earnestly explains how his ideal of vigorous manhood has changed since reading the article; he is now eager to develop general health and efficiency instead of bull strength.

Since we are all hero worshipers the stories of Pasteur, Florence Nightingale and Clara Barton, culled from different numbers of the magazine and related in sections by several pupils, hold our close attention. We shall look for more such stories in the numbers next year.

Our school is one of those which displayed for two weeks a set of health posters selected from HYGEIA's extensive prize list. The reproduction in the magazine of the best posters aroused great interest and comment, especially among pupils who are doing some poster work in the art department.

One of the baneful features of school instruction is its air of finality; as though the teacher said, "Here are the facts; get them into your head." There is no spirit of eager search for the truth and painstaking, critical testing to determine what is true. The story of the discovery of insulin by Banting, the discussion of the functions of the endocrine glands, and the account of feeding experiments with rats help the pupils to get the scientific attitude of mind and to appreciate the fact that there are still worlds to conquer —opportunities for all of them when they get to be scientists.

One of the girls, whose father suffers from asthma, found in HYGEIA the story of the pet cats and, after narrating it to the class, maintained that there must be some other cause of asthma, because they had no cat in their home.

In the spring months, when our thoughts turned to the outdoor life, the articles on "Boy Building in Summer Camps" and "Making Water Safe for Swimmers" provoked a vigorous discussion. Those who had had experience in summer camps confirmed the lesson taught in HYGEIA's pages and those who had not known the joys and benefits of life in the open hoped to profit by it soon.

The articles on "healthful beauty" proved attractive not only to the girls but to the boys as well. In these days of the lip stick and other abominations of the vanity case there is need enough to teach the superiority of the beauty from within, the beauty which comes from adequate nourishment, good circulation, free elimination, perfect health.

Children are often called cruel in their treatment of animals. They are commonly thoughtless but respond quickly to a humane appeal.

They are also able to distinguish the kindliness of the scientist who experiments on animals from the sentimentality of those who oppose such experimentation. They appreciated the late Mr. Baynes' articles on "The Truth about Antivivisectionists," and they admire the man who spent his waning strength in spreading the gospel of true humaneness.

HYGEIA meets such a variety of needs of the health class. If we are discussing infectious diseases, there are the articles on "Neighborly Diseases." If we are speaking of the scientific attitude of mind in contrast to the traditional and superstitious ways of treating diseases, there are "Plain Facts about Health and Disease" and "The Eclipse of Magic in Medicine." When we are considering the prevention of sickness, there is an illuminating article on quarantine.

Some days I am almost jealous of HYGEIA. When I am working hard to make clear some difficult point in physiology, I discover some pupil with his eyes fixed on a copy of HYGEIA which he has surreptitiously taken from the book shelf to his desk. As I fail to interest him in the science of physiology, HYGEIA captures his attention by her skilful presentation of practical matters of health. The problem is not how to interest pupils in HYGEIA but how to make my own teaching equally attractive.

RALPH E. BLOUNT,
Waller High School,
Chicago.

Second Prize Letter—$25

I HAVE reduced my difficulties with the "exceptional child" to the minimum through my system of "individual assignment sheet sets," to which all pupils have access when regular work is done. Among these sets is one named HYGEIA and, I may add conservatively, it is the most popular of all.

Each sheet nets the pupil credits which are posted after his name on the bulletin board and included on the deportment card. They are wonderful incentives to the dull pupil, who begins to do regular work with unexpected speed and accuracy, while to one of superior intellect they lead into work where his mettle and originality have real play.

Earning a hundred credits over a term's work through an eager study of HYGEIA contributes three forces to the pupil's social growth:

1. Health consciousness.
2. Intelligent, helpful initiative.
3. A direct sense of reward for work faithfully done.

Get the magazine from class members, from paper drives, or from some dentist or physician no longer needing old copies, is my advice to teachers. If these avenues are closed, buy copies yourself and open to your pupils a treasure house of joy and health and free yourself from the nagging annoyances of the uninterested and, therefore, the idle child.

The following sheets are addressed to the child and are accomplished by the project method and the socialized recitation. As such, they can be used individually or by the entire class.

1. "HYGEIA" SHEET

4 Cr.—Study cover design. Sketch or make colored paper cutout. Name it. No matter how crudely you draw, tackle the job. On the back of the drawing, write a few words telling your experience with the artist's idea.

2. "RAPID SCANNING" SHEET

2 Cr.—Record time to do following: examine one HYGEIA, getting general idea of contents. Write date of magazine and the name of two most attractive articles. Write one you think would interest your teacher.

3. "NAME" SHEET

4 Cr.—What does your name mean? Write brief sketch of who HYGEIA was. Consult mythology. Add a paragraph about some friend who resembles her.

4. "HYGEIA PUBLISHER" SHEET

5 Cr.—Write answers to the following, consulting contents page:

a. What is the HYGEIA magazine?
b. By whom published?
c. Name an attractive article in this issue.
d. Select an author in "Who's Who" and tell who he is.
e. Does HYGEIA pay for articles? Suggest topic. Would you like to write for HYGEIA?

5. "SLEEP" SHEET

1 Cr.—Record the number of hours you slept last night. Consulting physiology, give correct number for your age.

5 Cr.—Record number hours slept in next five days. Daily average? What do you lack?

2 Cr.—Do you go to sleep immediately? Explain.

2 Cr.—Read aloud your favorite prize letter on page 281, May, 1925, to home listener, who signs O.K. and grades your reading.

5 Cr.—Memorize first five rules of first prize letter.

6. "U. S. PUBLIC HEALTH" SHEET

3 Cr.—Read first article, page 302, May, 1925. Write U. S. Public Health Service. Ask for health bulletin useful to school child.

7. "RAPID SILENT READING" SHEET

Find May, 1925, page 296 or some like article. Record exact time for reading it silently, slowly, once. Close book and answer:

1 Cr.—Is composition of vitamins definitely established?

1 Cr.—Name four foods containing Vitamin A.

1 Cr.—Name four foods containing Vitamin B.

1 Cr.—Name three foods containing Vitamin C. Is it best to eat them raw or cooked?

2 Cr.—Name five foods rich in vitamins that you have eaten in the last twenty-four hours. Check the answer to above, grade your paper, correcting your errors.

3 Cr.—When did you drink your last lemonade? When your next?

8. "SOCIAL ARITHMETIC" SHEET

Can you find and solve a useful problem like this one? Get May, 1925, page 301, first article.

1 Cr.—Read silently, getting meaning.

3 Cr.—Solve: Mary, Fred, Jane and Jimmy have altogether had twelve colds this winter. What is average colds for each? According to article, what would average colds have been? What per cent. less or more have they had than the average?

3 Cr.—Choose a number of your classmates; figure the average colds.

3 Cr.—Find and read some HYGEIA article that would have reduced number of colds. Recommend it to some of your friends. If any read it, get an O.K. from them.

6 Cr.—Get three of your friends to form an anti-cold club with you.

9. "LETTER" SHEET

2 Cr.—Read page 276, May, 1925.

2 Cr.—Discuss the article with parents, making a written list of several you practice.

4 Cr.—Show to your teacher a letter written to American Child Health Association, asking for pamphlets about health.

10. "SCHOOL PLAYREADING" SHEET

5 Cr.—Small group, completing regular work, reads play, each taking turns. Listeners offer favorable criticism or point out needed improvements. Teacher "listens in," comments at conclusion. Readers earn credits.

11. "HOME PLAYREADING" SHEET

10 Cr.—Ask in neighbor children. Give home reading of HYGEIA play.

Reading directions: Read a bit to your teacher for her approval; don't hurry; throw feeling into your voice; speak in a natural voice, enunciating clearly; practice it alone, timing yourself; stand erect.

12. "PICTURE" SHEET

2 Cr.—Enlarge any pictures, using crayons, paints, or colored papers. Learn verses.

4 Cr.—Teach verses to any child.

2 Cr.—Do you practice what you preach? How?

13. "PICTURE STUDY" SHEET

1 Cr.—Study the pictures of one copy.

5 Cr.—Select one meaning most to you. Describe it from memory, adding a few sentences telling of your particular interest in it. How does this picture relate to your schoolwork?

14. "ADVERTISEMENT" SHEET

5 Cr.—Make list of "ads," writing them under the heads of health, babies, sports, amusements, and "ads" giving you something free.

5 Cr.—List ten words and their meanings.

5 Cr.—Find "ad" that seems to promise too much. Ask drug dealer about it. Make written report about your experience.

5 Cr.—On a U. S. railroad map (Union Pacific) draw lines from your home to the advertisers'. How many are west of Mississippi?

5 Cr.—Write letter to advertiser, asking for booklet or free sample as per advertisement. Double credit when you show your answer to your teacher.

3 Cr.—Make a talk on the "ad," showing the class result of your request.

15. "CREED" SHEET

10 Cr.—Make a HYGEIA Creed, first studying several copies. For example: "I believe in plenty of sleep. I believe in fresh air," etc. Four of you will enjoy this stunt.

16. "VISITOR" SHEET

5 Cr.—Invite a visitor to your room, hand him a copy of HYGEIA, asking him to read some article. (The writer was once inwardly convulsed when a boy handed his visiting mother, a huge woman, a fine article on "Reducing." She glanced covertly at the teacher and then read every word!)

17. "SELECTED ARTICLE" SHEET

5 Cr.—Select an article especially interesting to you. Get it O.K.'ed. Read carefully, noticing important points and learning new words and their correct meanings. Read it to some interested person who answers following:

1 Cr.—What was exact reading time?

4 Cr.—Did reader understand general meaning?

1 Cr.—What point did he ask you to explain?

1 Cr.—Ask him to write the meanings of three difficult words.

1 Cr.—Could he answer two questions? Have him write the questions. Give him a grade and sign your report.

18. "QUESTION AND ANSWER" SHEET

3 Cr.—Tell your teacher about one question you like. Ask her about it. (This will establish very close comradeship between teacher and pupil, giving teacher chance to sympathize with the child's real problems more deeply). One boy revealed to the writer an alarming condition of constipation after reading a mother's question about her baby. HYGEIA's advice, with that of teacher, relieved him.

3 Cr.—Make up a health question and one patent goods question, consulting teacher or mother. Send it in.

3 Cr.—Show it to teacher. (This assignment makes both pupil and parent aware of this most valuable page.)

5 Cr.—Read to class some answer exposing a "patent medicine."

19. "BOOK REVIEW" SHEET

5 Cr.—Search this department for books appealing to you or to mother. Ask librarian to get it or another on the same subject. Record your experience and the use you made of it.

5 Cr.—Read aloud some of it to parents or class.

10 Cr.—Visit nearby bookstore, asking to see a copy of it. It may be so valuable you will want to save your money to buy it.

20. "PRODUCING PLAY" SHEET

10 Cr. to each actor.—Ask teacher permission to produce a health play. Assign, copy, learn, and rehearse parts. Get very simple homemade costumes and scenery. Use your initiative. Let leader of play consult teacher only when necessary.

21. "CLUB" SHEET

20 Cr. to each clubmember.

Organize a health club. Name it. Make a set of rules. Consult teacher, HYGEIA, and librarian for help. Have a weekly meeting and listen to health reports on food, sleep, exercise, teeth, etc.

Arrange for a club contest and prizes for five best essays on following: "Ways to Save Health." Choose another topic if you wish. Club may award credits.

22. "ORIGINAL" SHEET

15 Cr.—Consult some copy of HYGEIA and originate a sheet for others' use. Have your teacher O.K. it. (Some of best sheets resulted from pupils' suggestions.)

23. "SUBSCRIPTION" SHEET

10 Cr. for each subscription.—Show your mother HYGEIA subscription "ad" and get her permission to write for the very liberal terms. Go into business for yourself, adding to your education by this experience. If you get even a few subscriptions, you have helped spread the gospel of good health.

In conclusion let me add: During my long happy experience with children, of the dozens of magazines used, none has paid so richly in joy, health, and usefulness as has HYGEIA. Courage and good luck to the teachers in its use. To the editors, a thousand thanks for the ideals of its pages.

M. A. B.,
Portland, Oregon.

Third Prize Letter—$15

AS TEACHER of sixth grade physiology and hygiene, I was very much discouraged. The children seemed bored in class and very glad when the period was over. In vain did I try to impress upon them the structure of the body and its organs, the care that should be taken of them, the nature and source of disease germs.

It was no use. The class was simply uninterested, and it was my job to see that they were interested in order that they might benefit from one of the most important studies—that of the human body. But what could I do with thirty-five bits of humanity that were continually squirming about, tormenting their neighbors, and exasperating me generally.

Then our school entered into a poster contest conducted by HYGEIA. It received honorable mention and a year's free subscription to the magazine. On examination of the first copy I found it just the stimulus needed for my work.

The next morning I took it to class and asked the children if they would like to do the exercises therein. They assented and we set to work. It was fun to them, bending and stretching the different parts of their bodies, while I counted.

We learned a health play a few weeks later and presented it in our auditorium. They were now thoroughly awakened and learned the things about their bodies that I had been trying to teach them from the text. Success met me now for they were no longer bored, but waited eagerly for each issue of HYGEIA to find something new to do. They were learning through play what hard grind and the text never would have taught them.

Girls in Miss Henderson's gymnasium class at the Jackson Junior High School, Salt Lake City, presented the HYGEIA *play "The Good Health Elves" before 1500 persons.*

Then came spring, and with it the pests, chief among which were flies and mosquitoes. Every year the community had suffered from them without taking steps for their eradication. We discussed them in the classroom; their breeding places, habits, length of life and their relation to us. We had about finished when HYGEIA came out, with a series of articles about household pests and their eradication. These we read and discussed in class and decided to put them into effect.

Accordingly, the class was organized under the name of Pest Crusaders. They were to put on a crusade against flies, mosquitoes and other insects in their own homes, according to instructions received. Then they were to extend the work to other families that did not have a crusader. Reports were to be made daily as to their progress.

Much enthusiasm was shown from the beginning as the little crusaders went here, there and yonder throughout the community, making it healthful and sanitary by pest-eradication. For the first time in many years we enjoyed freedom from insects and the diseases carried by them.

The crusade gave me an idea, and as HYGEIA is received monthly at our school, it was very easily carried out. I decided to use it as a supplement to our text. It was kept in the library, where each child could obtain access to it without difficulty, and from time to time I would assign a pupil to look up an article that accorded with our lesson and to report on it when the class met again.

These assignments were looked upon as marks of distinction, for no one was given them that did not do good work or know how to make a report with accuracy, leaving out the non-essentials, and condensing the article so that its direct bearing on the subject was readily obvious.

This caused a kind of friendly rivalry in the class—each student striving to have the best lesson in order to be allowed to bring in the report—as the child doing this was exempt from recitation from the text that day. My class became so lively that I could hardly believe that a few months before I had been discouraged at the dullness and lack of interest.

I soon found that one child reporting at the time was growing monotonous and something else must be done with novelty in it. Therefore, I put on a kind of oratorical contest. The children were to write compositions on the subject, "The Human Body—Its Friends and Enemies." These were to be written and recited as orations. There were to be three prizes of $5.00, $2.50 and $1.00. The children were told to use their text and any book in the library relating to their subject.

They began work at once, for two weeks was the allotted time in which to prepare and learn their pieces. Much effort and thought were spent by them in the preparation of their themes, and all the while the interest in their classwork continued unabated. At the end of the first week I had each student pass his paper in that I might correct and return it, for the contest was to be held in the auditorium, and their parents and friends were invited to be present.

The great day arrived at last, and the elimination contest having been held the day before, there were only ten orations to be presented. The judges were chosen, the audience became quiet and the children began. They all did well, but the three adjudged best were those in which most of the ideas had been gleaned from HYGEIA and woven with thoughts of their own.

HYGEIA figured greatly in the preparation for Health Week. At the oratorical contest given at the school, we charged a small fee of one cent for both students and visitors, with the exception of the participants. This netted a large enough return to have small tags printed that were titled Health Week, with the following subtitles:

1. Hygiene Day.
2. Tuberculosis Day.
3. Fevers Day.
4. Fly Day.
5. Mosquito Day.
6. Clean-up Day.

Each of these was a subject of an essay that was read by five students on as many days in their respec-

tive order; the sixth day was observed by all. These tags were sold by the children during Health Week at five cents each, their slogan being, "Wear a Health Tag, and Keep Well." On Friday night a health play that had been written by the class was presented.

By this time the children would as soon have thought of giving up the class itself as HYGEIA. To me it was a blessing, for they were no longer idle and had no time for the little things that used to annoy me. They looked forward to coming to their physiology class for they knew something novel awaited them there.

In addition to the other uses to which HYGEIA had been put, it was now to be used on Fridays, which were known as "Hygeia Days." Varied programs were given on those days instead of recitation, as rewards for good lessons throughout the week. The children were allowed to give articles, go through any exercise, or repeat any poem that appeared in the magazine. This they did, and at the end of the term they had a nice collection of ideas about health that would have otherwise escaped them.

They were also required to keep notebooks and in this way physiological facts as well as gleanings from HYGEIA became their permanent personal property.

The thing they enjoyed most of all was the HYGEIA scrap books. With the proceeds from our tag sale we bought large loose-leaf note books. Each book was labeled, "Head," "Trunk," "Arms, Legs, Feet," "Internal Organs," etc. As we finished reading HYGEIA each month any article concerning diseases, or about parts of the body, was clipped and pasted in the books, according to the information they gave. The books were to be put into the school library when finished and used for reference.

I feel myself indebted to this valuable journal because it has helped me keep fit and has given me ideas to advance to the children. Therefore, for its educational value, I use HYGEIA in my class work.

L. URSULINE ROBERTS,
St. John Institute,
Austin, Texas.

Fourth Prize Letter—$10

HYGEIA made its distinctive entrance into my school in January, 1924, when it brought me just the sort of health play I had been wishing for. It was "From Danger Valley to Safety Hill," by Miss Lydia Roberts of the University of Chicago. The play was such a success that certain girls are still referred to as "Milk," "Butter," "Sweet," etc.

I was, of course, familiar with HYGEIA, but upon accepting my present position, I requested a subscription to HYGEIA for my school and was thus instrumental in getting every junior high school in the city a subscription to it.

I have made regular use of HYGEIA in my health teaching although I have varied its use, depending on the material offered monthly and on its fitness (as to time and subject matter) to our needs at its arrival.

I always read the magazine before letting it leave my desk. Throughout the entire school year, I read one or more articles or parts of articles to the various classes each month. Since the junior high school includes the seventh, eighth and ninth grades and provides for children from eleven to sixteen years of age, I met as nearly as I could the different levels of the girls in my selection of things to read.

If I began an article, I usually had a number of girls read a little and finish it in class. At other times, I simply checked the most appropriate articles for them and requested girls to read and report on them. This was better teaching, I know, but I suggest the previous procedure for arousing an interest in HYGEIA. Too few of our pupils and alas! some teachers, are acquainted with scientific sources of information. One has to pave the way for such information and to popularize it on some permanent basis.

I purposely planned for some reports not to be finished in class and I offered the book to any who wished to finish the reading and to get detailed information, explaining that a condensed article is seldom complete. That marked the beginning of the girls' taking the magazines home. I offered to let any one borrow any copy that was in and so began the circulation of all of our copies of HYGEIA.

Several times girls who had read the second or third installment of an article came and asked for the books that had the first part. The Baynes' "Truth about Antivivisectionists" was very popular. Though few of our girls had ever heard of antivivisectionists, they got great joy out of the late Mr. Baynes' delightful way of expressing himself and from his cleverness in more than meeting his adversaries.

Girls who had not read the magazine were often left out of conversation or discussion and they usually were the next to request a copy of HYGEIA. Quite often, girls asked for a longer loan period because a parent or other member of the family had become interested and had not finished his reading when HYGEIA was due. There have been times when I wished to separate and file some material but have decided that the reading service to the many far excels the other possibility.

So successful was health play in Salt Lake City that it was broadcast from station KSL as a part of the Child Health Day celebration. All the parts were taken by girls.

During our week of good health celebrations, May 1, we drew pretty heavily on HYGEIA. The girls gave a Good Health assembly program and "The Pyramids," "Mr. Dooley on Health," "What Johnny Heard in the Apple Tree," and Mark Twain's essay on "Man" were all used to advantage.

On Child Health night, we had the privilege of presenting HYGEIA's "Good Health Elves" by Bertha Morris Parker of the University of Chicago. It was so great a success that it was offered to 1,500 children. It was broadcast from Station KSL, Salt Lake City, to children and others all the way from Utah to California, Washington and Oregon.

An exhibit of health posters made by the girls has been featured this spring. The pictures of the HYGEIA posters were examined and reexamined and discussed but not copied. The girls got some splendid concrete ideas, as to proportions, captions and printing. We very much regretted not knowing of the poster contest of last year.

We invited pupils from an elementary school near by, which we have the privilege of using as a sort of practice school, to see the posters. Appreciating that it often is an easier matter to drive home a health truth in fun than seriously, some girls had carefully cut out and mounted the sprighty little caricatures of Mr. Lemos, which presented the performance of health habits in such an appealing way to the younger children. Of course, the older girls enjoyed the fun too and I noticed that they took pleasure in explaining them to the visitors. One little first grade chap spent his full time spelling his way through the little rhyme about milk.

We have gone a step farther; teachers of other subjects are borrowing HYGEIA. First they took one copy, then more. One teacher left my gymnasium a few days ago with six HYGEIAS under her arm, anxious to read them; hence, wider dissemination of what good there is in your scientific health magazine, HYGEIA.

I wish each of us or each family of us could have an individual copy but that cannot be as I work in a district where few could afford it. In lieu of that, I am sure we are making our one copy serve as many as it can.

Now, HYGEIA is read from cover to cover—the beautiful frontispieces, the valuable health articles, the helpful questions and answers, the safe advertisements, the beauty notes and ALL.

LOUISE HENDERSON,
Physical Director for Girls,
Jackson Junior High School,
Salt Lake City, Utah.

"The Seven Year Itch"

NORMAN TOBIAS

HAVE you ever had the itch? If not, it is most probable that one of your friends may have had it at one time or another. The disease is sometimes referred to as the "seven year itch," army itch or just plain itch. To the physician it is known as scabies, a term that is derived from a Latin word meaning "to scratch." A little itch-mite is the cause of it all.

It will surprise you to know how common this parasitic disease really is. More than five out of every 100 cases of skin disease are cases of itch. During the World War when thousands and thousands of our soldiers were afflicted with the ravages of this animal parasite, it was one of the chief disabling diseases. Moreover, the number of cases in civil life has been on the increase in the last few years, another state of affairs for which the war is to blame. Fortunately, the itch is easily cured if proper treatment and precautions are followed.

Scabies is a skin disease that is characterized by contagiousness, intense itching, which is worse at night, and an eruption of pimples and small blisters on the hands, wrists and buttocks especially. The cause of all this is a tiny animal parasite called the itch-mite or Sarcoptes scabiei.

One may think that the disease is strictly limited to the members of the lower strata of society but such is not the case. Mr. Jones, the banker, may be a victim as well as the poorest patron of a cheap lodging house. Folk of good habits and surroundings, such as Mr. Jones, usually acquire the disease in hotels and sleeping cars through the medium of infected bed clothing, sheets and blankets. It may require from two days to a month from the time of exposure to develop all the symptoms of the disease.

Affects All Strata of Society

Like so many other diseases it is a difficult matter to trace the origin of the itch. It appears that Aristotle was acquainted with the condition, but all definite knowledge of his studies was lost. In the early days of civilization when superstition held sway, scabies was considered a curse of the evil spirits and nothing was done to relieve the unfortunate victim. Epidemics of the disease appeared and every one scratched and scratched until he finally gave up all hope of ever getting cured and had to put up with it for seven years and longer.

Physicians were baffled as to the cause of this disagreeable disease that gave our forefathers sleepless nights and broken-out skins. Even as late as the seventeenth century long-bearded medical men considered the disease to be in the blood, and to cure their patients they prescribed blood purifiers and blood letting.

From time to time various investigators reported that they had found little crawling insects in the skin of patients suffering with the itch, but these fellows were considered crazy

and no one believed them. Finally a young French scholar named Mouffet was so sure that he had discovered the true cause of the disease that he wrote a paper on the subject and drew pictures of the parasites. That was in 1634, but it was not until 100 years later that the entire medical profession was definitely in agreement on the subject.

Female Itch-Mite Is Trouble Maker

Now let me introduce the instigators of the itch, Mr. and Mrs. Itch-mite. Their business on earth is to make people scratch, and their slogan reads: Scratch a little harder, dig a little harder. Unlike their cousin, the body louse, which chooses the seams of the clothing for its quarters, these mites prefer to roam about the skin. It may seem a little unfair to state, although it is the absolute truth, that Mrs. Itch-mite is more to blame for the uncomfortable features of the disease than her lazy husband. It is she who does all the boring. The male of the species is content with taking it easy and watching his spouse prepare the nest for the eggs.

A close-up of Mrs. Itch-mite reveals an oval, grayish, ugly, many-legged creature looking somewhat like a miniature tortoise. She is proud of her four pairs of legs, which are a great help to her. The front pair of legs is equipped with suckers to keep her from skidding. Bristles are attached to the hind pair to aid her in her excavating work and to make her presence better known to her host. It is true that she is only $\frac{1}{70}$ of an inch long, a mere speck to the naked eye, but she is capable of digging a tunnel in the outer layer of the skin $\frac{1}{8}$ to $\frac{1}{4}$ of an inch long and laying one to two dozen eggs a week.

The mites prefer to work at night when all is quiet and calm and the victim is snug and warm in bed. As the female bores into the skin, she leaves a tiny blister behind to indicate the point of entrance. The eggs are laid in the tunnel where they are kept warm and away from harm. The little baby mites are hatched out in less than a week and reach the surface by breaking through the roof of the nest. Fortunately, Mr. Itch-mite dies soon after the breeding period, but Mrs. Itch-mite manages to survive until all the eggs are hatched.

Itch Can Be Cured

The mites select certain parts of the body for their picnic grounds, being partial to areas where the skin is thin. The webs of the fingers, wrists and forearms, armpits and the buttocks are their favorite parking spaces. The face is rarely attacked except in young infants who may acquire the disease from the breasts or clothing of the mother.

Scabies never gets well unless properly treated. It may last for years, hence the name, seven year itch. The treatment, which is relatively simple, consists of destroying the parasites and their eggs. Sulphur and Peruvian balsam, when properly used under the direction of the physician, are capable of curing the disease.

Overtreatment must be guarded against as these drugs when improperly used may set up a severe inflammation of the skin. The bed clothing, underwear and hosiery must be boiled, steamed or dry-heated to kill the parasites and eggs harbored there.

Elizabeth Tennent

Vacation Helps

AUGUST and September complete the vacation period. The summer has been hot and there have been many cases of sunburn. There are three degrees of sunburn. The mild redness and slight itching is the first degree. The blistering and swelling with the excruciating pain is the second degree. When the blisters burst and the flesh underneath is exposed, the burn is in the third degree.

Fortunately, most persons with sunburn, no matter how severe, are only temporarily disabled, and all functions of the skin return. One ought to learn how much exposure to the sun his own particular skin tolerates without reacting too strongly. The darker the skin and hair, the more sun exposure one tolerates without ill effect. One should not go the estimated limit the first Sunday on the beach or on a fishing trip.

A home-made prescription for preventing sunburn is to daub the skin of the exposed parts with vinegar diluted in water. Even after one is more or less mildly burned by the sun, a vinegar and water solution daubed on will cause relief. If the eyes or the lips are blistered by the sun, he should not try the vinegar-water combination.

Bicarbonate of sodium has enjoyed a remarkable vogue for sunburn. Caking the sunburned parts with this gives relief. One should not attempt to use both the vinegar and the bicarbonate, either one after the other or together. The result will be a chemical reaction.

Poison ivy designates a group of plants that cause irritation of the skin. There are three leaflets on the ivy, each somewhat four sided, and the color of the leaf varies. One should keep away from plants that look like ivy and avoid poisoning.

Hot weather brings activity of plants, and the parasitic plant diseases spring into renewed activity. Certain of these vegetable parasite diseases affect the general non-hairy skin. A common one appears as brown blotches over the chest and back. Another annoying vegetable parasite disease comes between the toes, between the fingers and on the palms and soles. This last type is generally improperly diagnosed by chiropodists as rheumatism of the skin and other equally fantastic names.

Letting down the bars of a hygienic regimen on hikes and camping trips permits the increase of certain parasitic diseases of animal origin. The itch and animal residents of the hairs and skin cause irritation. Germ life causes blister eruptions which are contagious. The bathing suit, towel, and slippers improperly sterilized after use and lent or rehired may be the agent for carrying skin diseases from one person to another. Lying on the sand permits ultimate irritation and possible infection. Cuts and bruises from glass or clam shells should be attended to at once.

One should take advantage of every moment for outdoor life until well into the autumn. The sun is a giver of health, and life is well worth living.

Blonde Hair

To the Healthful Beauty Department:—Is there any harmless method of keeping blonde hair from darkening; that is, in an adult who has always had blonde hair? The hair is gradually darkening close to the scalp. It is extremely heavy, grows rapidly and is rather coarse in texture. What can you say, generally speaking, of the various shampoos for this purpose, blondex, white henna, etc?

Y. G., Missouri.

Answer.—Blonde hair can not be prevented from becoming darker, but the use of peroxid of hydrogen will produce a temporary restoration of the lighter shade. It is preferable, however, to permit the hair to retain its natural color, not attempting to interfere with the change in shade that is taking place. The proprietary remedies (so-called "patent medicines") have no advantages over peroxid for the purpose mentioned, and since most of them are of unknown composition, they cannot be recommended.

HYGEIA

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Plain Facts about Health and Disease

HEALTH NEWS OF THE MONTH

British Cancer Discovery

Newspapers, during the latter part of July, featured prominently the announcement that Dr. W. E. Gye of London and Mr. J. E. Barnard had discovered the cause of cancer. Unusual romance attached to the discovery in the minds of newspapermen, because it was reported that Mr. Barnard was not a physician but a hatter by occupation, and that he had only an amateur's interest in the study of bacteria with the microscope.

Subsequent reports indicated that the London *Lancet*, the medical periodical that contained the official scientific statements of this research, had apparently cooperated in controlling the announcements so as to secure unusual newspaper publicity. Indeed, the *Lancet* prefaced its account of the work with a statement that it marked an event in the history of medicine, although at the same time using the modest phrase that these discoveries "may present a solution of the central problem of cancer."

American investigators who were consulted were inclined to be most conservative in accepting the claims of the British discoverers. Now that the complete reports are available, they are still more doubtful as to the exact value of this new work. Briefly, it appears that the British investigators have merely confirmed the results of experiments conducted in this country almost fourteen years ago by Dr. Peyton Rous of the Rockefeller Institute. At that time Dr. Rous found that certain tumors occurring in fowls contained a substance which, when injected into other fowls, would produce new growths. However, this does not mean that this substance is the cause of cancer. It is known that there are several substances that will produce tumors in fowls, rats or mice.

The particular contribution of Mr. Barnard to the new research seems to be the photographing of certain spheroidal forms which appear in the substance that is believed to have the power of producing new growths. The materials constituting these spheroidal forms have not been separated from the rest of the substance, and as Mr. Barnard himself says, "The bodies are found in profusion in various types of fluids containing organic matter."

In general, it may be said that the vast amount of scientific evidence thus far available does not indicate that the production of cancer requires a specific cancer germ. There is good evidence that some forms of malignant growths could not possibly be produced by injection. In view of these facts, medical investigators feel that much more study will be necessary before the claims of the London *Lancet* that cancer is caused by a cancer germ, either with or without some associated chemical substance, can be accepted.

Diabetes in Children

Before the discovery of insulin, a child who developed diabetes was practically certain to die after a brief existence. Since the discovery of insulin by Drs. Banting, Macleod and their associates, the diabetic child seems to have more than an even chance for a reasonably long life.

Dr. E. P. Joslin has recently analyzed the records of diabetic children who came under the care of the medical institution with which he has been associated during the past twenty-seven years. Three hundred fifty-one children are concerned; the records of 49 were promptly eliminated because it was not certain that these children had actual diabetes. In their cases there seemed to be some doubt as to whether sugar was eliminated in the urine because of some kidney disturbance, rather than because of any difficulty in the proper utilization of sugar in the body.

Of the 302 cases in which the diagnosis of diabetes seemed certain, 162 died and 132 are alive. Six children of the original 351 could not be found and two others are known to have died, although the dates and the other information relative to the deaths have not been secured.

Of the 164 children treated without insulin, only 12 remain alive; of the 130 children treated with insulin between August, 1922, and March, 1925, 120 are living. As Dr. Joslin says, "Formerly it was the exception for a diabetic child to live; now it is equally exceptional for him to die."

In this connection naturally new problems have arisen for investigation by physicians. In the first place, even though they continue to live, these children require special care. Twenty of those treated with insulin have now lived 4.4 years and 40 per cent. of those treated have either not increased or have actually decreased the amount of insulin necessary to keep them in satisfactory condition.

This practical observation is especially important in view of the fact that certain Canadian investigators have found that without doubt actual regeneration or new growth of the pancreas takes place in young patients undergoing proper treatment. Since the deficiency of the pancreas is definitely related to the onset of the disease, this observation affords great encouragement.

M. F.

THE MORON

ACCORDING to the newspaper reporters' use of the term, a moron is a mentally defective criminal who attacks women and girls. No term has been so flagrantly misused as this! It seems timely, therefore, to follow the Illinois Society for Mental Hygiene in placing the definition correctly before our readers.

The word is derived from a Greek word that means "foolish one" as contrasted with "sophos" —a "wise one." The word "sophisticated" comes from the later. When a physician uses the word "moron," he means a person who has been tested mentally and found to have a slight grade of mental deficiency, sufficient, however, to place him among those classed as feebleminded. Thus if a person over 16 years of age shows through tests the mentality of a child of 12, he is called a moron.

The bulletin of the Illinois society states that the great majority of persons who commit delinquencies, either sexual or otherwise, are not morons but have adequate or even superior intelligence. The majority of morons are well behaved, docile persons who can do simple tasks, but who are not equipped with sufficient intelligence to do work requiring a high degree of training or skill.

It is important that morons be trained in good habits and be informed as fully as possible as to their proper relations to the community to keep them from blundering inadvertently into the crimes which, unfortunately, are attributed to them.

M. F.

PERIODIC EXAMINATIONS OF THE APPARENTLY HEALTHY

RECOGNITION by the public of the value of periodic health examinations is shown by the increasing demand for such service. It does not seem to be generally understood, however, that attention to the physical condition is essential at every stage of development from the moment that life begins.

In the prenatal period, of course, examination is made of the mother of the developing child. The health habits of the mother determine largely the future mental welfare of the infant. Prenatal care, adequately rendered as in New Zealand, has brought about notable diminution in the accidents of pregnancy and birth and improvement in the vigor and health of the infants. Every woman should be examined by a competent physician, preferably the one who is to attend the birth, as soon as she discovers that she is to have a child. She should be advised as to her diet, clothing, exercise, and work; and thereafter she should see the physician at such intervals as he thinks necessary.

The remarkable accomplishments of the infant welfare movement, in private practice as well as in dispensaries and infant welfare stations, are ample evidence of the value of periodic physical examination of infants.

The preschool age, between infancy and the beginning of attendance on the schools, only recently has begun to receive proper attention. This is the period when minor physical defects of the teeth, tonsils, ears and eyes should be detected and remedied. Frequent examinations of a normal, healthy child are not necessary at this age. One thorough, careful survey, perhaps conducted in two or three sittings, is sufficient. If the child has not been vaccinated against smallpox in infancy, he should be vaccinated as soon as possible. The physician may advise also that he be tested for susceptibility to diphtheria or scarlet fever and perhaps that he be inoculated against these diseases.

Throughout young adult life the frequency and character of the physical examination are largely to be determined by the nature of the occupation and the living conditions. When one is entering on any new occupation, especially if its pursuit involves severe physical or mental effort, his fitness to undertake it should be determined by a survey of his condition. An

annual examination thereafter is well worth while, but not so essential in early adult as in middle and later life. For the man or woman after 40, an annual physical examination is urgently to be advised, while from the age of 60 onward, examinations at least twice yearly are wise.

The person who can have such attention paid to his physical condition as has been outlined, by a competent, conscientious and wise physician, is pretty certain to lead a comfortable and physically efficient life. The periodic health examination is the most helpful and worth while service that medical science of today can render.

J. M. D.

POTENTIAL DANGERS IN FILLING SILOS

EVERY year agricultural journals and the public press record deaths from asphyxiation of workmen engaged in filling silos. In spite of repeated warnings, the general public does not seem to be aware of the potential dangers to life in this occupation.

The silo is a tall, cylindrical building constructed of staves and hoops, reenforced concrete, cement or other material. It is provided with doors in the roof for filling and with a chute through which the ensilage is discharged during the feeding season. The chute is provided with doors which are closed as the silo is filled and opened or removed as the ensilage is used.

Ensilage consists of green vegetable material, usually immature corn, which is cut into small pieces by means of a cutting machine and carried into the top of the silo by means of a powerful current of air. During the process of filling, workers distribute the ensilage and pack it by tramping.

Numerous studies on ensilage have shown that the green fodder on being placed in the silo immediately begins to undergo changes opposite to normal plant metabolism; i. e., the oxygen of the surrounding air is consumed and carbon dioxid gas liberated. In some cases the oxygen is almost entirely consumed. The carbon dioxid surrounding the particles of ensilage is supposed to be the principal preservative of the green fodder. Because of the high specific gravity of carbon dioxid, it tends to remain at the surface of the ensilage and for a few feet above.

Records show that most of the silo accidents occur in the morning, apparently after fermentation has taken place during the night or over Sunday. On entering a partially filled silo in the morning, therefore, the workmen may be engulfed in an invisible lake of carbon dioxid gas. The danger, of course, is greater if the worker lies or sits on the surface before the filling operations begin.

To prevent accidents, if the silo is partly filled with fresh fodder, the blower should always be started for a few minutes before the workers enter. Information concerning the simple rules for preventing accidents should be more widely disseminated among farmers and dairymen.

L. E. W.

MEDICAL ASPECTS OF VACATION

THE general impression is that persons who take an annual vacation are likely to live longer than those who toil constantly without any break in the continuity of their work. We know, as Sir Humphrey Rolleston puts it, that a long and healthy life depends to a great extent on the type of body that one has inherited from his parents and on one's freedom from numerous infections that may undermine the physical body in youth. Young, rapidly growing persons need more rest than do adults.

The type of vacation chosen, at least from the mental hygiene point of view, should be such as to cause the individual to forget his usual occupation and habits. Thus the desk worker and clerk should spend their vacations in some muscular exercise that will distract their minds from their ordinary routine of things. On the other hand, the manual laborer might find a vacation spent in a hammock with a good book the ideal form for recuperation. The intelligent worker who spends two weeks' holiday playing bridge in a hotel room or attending the theater in a crowded city is merely diverting his mind without in any way giving opportunity for any change to his tissue physically.

Again, from the point of view of mental hygiene, it might be desirable for the head of a household to spend his holiday away from the family and his usual associates. The broker who attempts to recuperate at a hotel in which he keeps in constant touch with the ticker and the customers in the city is likely to return a little more tired than when he went away. The matter of departing from the usual mental groove is no doubt most important in planning a vacation.

Sir Humphrey Rolleston calls attention to certain diseases that may menace vacationists. The exigencies of travel may result in constipation, owing to the interruption of one's habits, or food poisoning may follow the eating of carelessly prepared and improperly selected material in unusual restaurants and resorts. The vacationist may depart from a perfectly

healthful city to arrive at a lake resort in the midst of a typhoid epidemic. Sometimes a middle-aged man who has spent ten months sitting at a desk steps at once into climbing the Alps, surf bathing or the tennis court, throwing a dangerous stress on blood vessels little able to accommodate themselves to the new demands.

Perhaps it is best, after all, to suggest that the vacationist who is planning to undertake a month of hunting, fishing, or any unusual activity consult competent advice before beginning his tour, in order to determine the state of his blood pressure and his arteries. Persons with anemia should not take too much exercise, but should first give opportunity to the blood-making system to provide the necessary red blood corpuscles. The head of a family on the verge of neurasthenia or a mental breakdown should not be encouraged to depart with his wife and four children and several tons of luggage on an extended railway journey. In such instances, a dose of a suitable sedative may at least put him in a humor to resist successfully a lot of annoyance.

M. F.

THE OPPOSITION TO VACCINATION AGAINST SMALLPOX

SMALLPOX, one of the most loathsome and, in prevaccination days, one of the most deadly of the diseases of man can be successfully combated by vaccination. The proofs of this fact are overwhelming and absolutely convincing to any logical mind. Nevertheless a considerable number of persons oppose vaccination and make use of every possible means to combat it, including gross misrepresentation of the facts and statistics.

In large part, the antivaccinationist contingent is made up of persons who have a bitter spleen against all scientific medicine. They refuse to accept the evidence that many diseases are caused by micro-organisms and deny that experimental methods involving the use of animals have contributed anything to our knowledge of disease. Many of them are devotees of the dogmatic cults that claim to cure all diseases by some special method of treatment.

A few of the opponents of vaccination, however, may have been led to their conviction by some unfortunate experience of a relative or friend. In some cases vaccination wounds have become infected accidentally with virulent pus germs or the tetanus bacillus, and severe, perhaps fatal, infections have resulted. Recently the U. S. Public Health Service recorded eleven cases of lockjaw—nine of them fatal—resulting from infected vaccination wounds. In these cases bunion plasters had been used as vaccination shields.

Among the millions of persons in the world who have been vaccinated against smallpox during the past year, such untoward accidents have occurred to only a few. Many more fatal accidents resulted from trivial incidents of every day life. A finger or toe nail, a corn or a bunion is cut too closely and the slight wound becomes infected with serious or fatal results; does that deter any one from cutting the finger nails or paring a corn? A trifling cut with a razor, the pulling of a hair from the nostril, an abrasion of the foot from an ill-fitting shoe—any one of these trivial wounds may become infected, but the number of serious results that follow such procedures is negligible.

HYGEIA has in previous articles made clear how relatively innocuous and safe is vaccination as now practiced with bovine virus in skilful hands. Vaccination is just as much needed as ever it was. Over 50,000 cases of smallpox occurred in the United States in 1924. The disease caused more than 831 deaths. It may appear in any community at any time and in virulent form. There is only one sure protection against it, and that is vaccination. Be vaccinated and also revaccinated every five to seven years, and see to it that the other members of your family are protected in the same way.

J. M. D.

BIG FISH AND LITTLE FISH

EVER since the day when it was recorded that Jonah spent a certain amount of time within the interior of a great fish, the incident has provided a source for speculation for many scientists as well as theologians. The most recent discussion of the subject is that of Sir John Bland-Sutton, who addressed the Royal College of Surgeons of England in June, the title being "The Psychology of Animals Swallowed Alive."

It is well known that human beings swallow animals in a living state, including particularly the oyster and various bacteria. Many fish in the sea swallow other fish in a living condition; indeed incidents are reported in which sharks have met their death through swallowing porcupine fish. In one case a porcupine fish swallowed by a shark ate its way entirely out of the shark's body.

One of the most interesting tales to appear perennially in the newspapers is the account of some woman or girl who has inadvertently become the host for the eggs of snakes or frogs,

which have then hatched out leisurely within the human interior. There appears to be not the slightest reason for believing such tales! It is well known, however, that snakes may swallow frogs alive, and Rudyard Kipling is authority for the statement that a grass snake with a "bulge in the belly" when split open gave vent to a frog that leaped nimbly away.

Many of the reported instances of frogs or snakes developing in the human interior represent delicate, sleight of hand performances by well meaning persons inclined to practical jokes. Sir John Bland-Sutton tells the following tale:

> A thin and foolish woman believed she had accidentally swallowed a frog and that her thinness was due to the frog eating the food in her stomach. In order to dispel the illusion the doctor gave the patient an emetic and during the vomiting he slipped a small frog into the basin.
>
> When the patient saw the frog her joy was great, but in a few minutes her depression returned: "Oh!" she exclaimed, "I am sure this frog has left some young ones in my stomach."
>
> The doctor looked wise, pulled out his magnifying glass, and after critically examining the frog said unto the patient, "Fear not; this frog has not left any froglets inside you. Behold, it is a male!"
>
> The patient was quite satisfied, became happy, and in a few months was plump again. She was not a naturalist, and therefore ignorant of the fact that it is difficult to tell the sex of frogs by mere inspection except at the breeding season.

M. F.

PREVENTING BLINDNESS

OVER forty years ago a distinguished authority said: "One third of all existing blindness should have been prevented, one third might have been prevented and only one third is inevitable."

The National Committee for the Prevention of Blindness, founded about a decade ago, cooperating with other health agencies, has aided in educational movements and the securing of legislation which have lessened the number of cases of blindness, especially those resulting from causes operative at birth. Credé, a German physician, found many years ago that by dropping a weak solution of nitrate of silver into the eyes of the new-born babe, the infection of the eyes could be prevented.

Physicians inaugurated a movement to make this care of the eyes at birth a universal practice among physicians and midwives. Laws were passed in several states, and in foreign countries, making the practice compulsory; in several of the more progressive states, the departments of public health arrange to supply the preparation in convenient form for use.

It has been a struggle to educate the public as to the importance of this measure, but the sustained efforts of the leaders in this movement are beginning to bear fruit. Schools for the blind in the United States, in 1908, admitted 290 new patients of whom 77, or 26.6 per cent., were made blind by ophthalmia neonatorum (inflammation of the eyes due to gonorrheal infection of tissues surrounding the eyes at the time of birth). In 1924, of 712 new cases, only 91, or 12.7 per cent., were blind from this cause.

In Chicago, in 1924, not a single case of this disease resulting in blindness was reported, and in Buffalo, no case of blindness from this disease has been reported for nine years. Other eye diseases and other important phases of the subject have been studied.

This is just another demonstration of the possibilities of disease prevention and health betterment through medical education of the public.

J. M. D.

ACCIDENTS FROM ZINC STEARATE

AT LEAST 131 mothers in the United States, while bathing and powdering the baby, have let the child hold the can of zinc stearate powder as a plaything. As a result, 131 babies have passed through such serious attacks of inflammation of the lungs or zinc stearate poisoning that twenty-eight of them have died.

These facts were discovered through the committee on accidents from zinc stearate dusting powder appointed by the board of trustees of the American Medical Association. So serious were the findings that the committee determined to call a conference of manufacturers of such powder, and of physicians, with a view to preventing such accidents in the future.

When the manufacturers had the possibility of danger called to their attention, they promptly offered to use a new type of container that would be self-closing and would not lend itself to manipulation by an infant. They also agreed to place caution labels on the packages.

In this connection it is interesting to find that the majority of physicians who specialize in diseases of infants and in diseases of the skin were not at all convinced that zinc stearate powder had any advantages whatever over ordinary talcum and dusting powders not containing zinc stearate.

The committee has done a valuable work in preventive medicine. No doubt, the future will show only a very occasional death resulting from carelessness in the handling of zinc stearate.

M. F.

BOOK REVIEWS

CHILD MARRIAGES. By Mary E. Richmond and Fred S. Hall. Pp. 147. Price, $1.50. Published by Russell Sage Foundation, New York. 1925.

DICKENS, in the "Holly Tree Inn," tells the story of two children who ran away to Gretna Green to be married. Although the tale was idyllic, child marriages in real life do not always turn out so happily. Richmond and Hall condemn the marriage market towns to be found throughout the United States, calling them Gretna Greens, notorious accessories to the commission of hasty and clandestine marriages.

A study of certain less successful marriages of this sort reveals early separation or divorce, the bearing of weakly children by girl mothers and a long chain of disastrous and pathetic consequences.

The authors are concerned in this book only with such of these ill advised marriages as involve children and youths. It is their estimate, based on careful calculations, that no less than 667,000 persons living in the United States today have been principals in a marriage in which the bride was a child. We are apt to romanticize about youthful marriage and to overlook its possible calamitous results.

What is the earliest proper age for marriage? The authors believe that readiness for marriage depends on the physical maturity as well as the age of the youth or maiden. In fourteen states the law or judicial decision answers according to the standards for the old common law of England, fourteen for boys and twelve for girls. The minimum marriageable age in nine states is fourteen years; in eight states it is fifteen years, and in seventeen states it is sixteen years.

The law sometimes provides safeguards at the earliest years, such as the obligation to obtain the parents' consent. In actual practice, however, it frequently happens that parents' signatures are forged to letters of consent, or that designing persons pose as parents, or that parents ignorantly or, at times, wilfully and for selfish motives, acquiesce in the marriage of children too immature to comprehend what they are undertaking. The inadequate age requirements of the states are rendered even more dangerous by the comparative ease with which a false age may be claimed and registered.

The situation is at its best in states with reasonable and enforceable age requirements, and in localities where the one who issues the license recognizes his responsibility. It is possible for him to require that both parties to the marriage shall apply in person, thus giving him an opportunity to detect a miss who appears to be several years younger than the age claimed in her application for a license. He may require that the signatures of parents must be sworn to before a notary, or he may insist that those appearing before him as matrimonial candidates or as consenting parents must be properly identified.

The wise administration of the law is as much needed as improvement in the statutes. Until we realize the trail of disasters following many marriages of the immature and see to it that both the statutes and their administration are acceptable, any parent may be startled with news of a runaway marriage and any child may place his or her future happiness in jeopardy.

F. D. J.

SCHOOL VISION AND THE MYOPIC SCHOLAR. A Book for Teachers and School Workers. By James Kerr, M.A., M.D., D.P.H. Formerly Honorary Surgeon, Bradford Royal Eye and Ear Hospital, Medical Superintendent Bradford School Board, School Medical Officer for London, etc. Cloth. Price, 5 shillings. Pp. 160 with 28 illustrations. George Allen and Unwin Ltd., London. 1924.

FROM a large experience in dealing with poor vision in schools, Dr. Kerr has appreciated the need for such a book, and has proceeded to meet it. Although written for teachers and school workers, its subject matter should claim attention from parents, and from any one else interested in the healthy development of children.

In every school are children with sight too defective to keep up with their schoolmates by ordinary methods of study from books, blackboards, maps and inspection of objects in the classroom. Dr. Kerr thinks that special classes should be formed of these children. He suggests that their school work should be modified to avoid the necessity for wearing glasses.

Dr. Kerr says that the work of the sight-saving class in the school must be wholly directed by a specially trained teacher, free as regards actual school work from the control of any other person untrained in this respect. Especially must the functions of this class be protected from sacrifice to the academic rule-of-thumb ideals of the ordinary teacher, school inspector, or even occasionally the medical officer.

Attention is called in the volume to the common defects of the eye, to the process of seeing, myopia, special teaching methods for those with subnormal vision, the actions involved in reading, writing and drawing, and the myope class and its work.

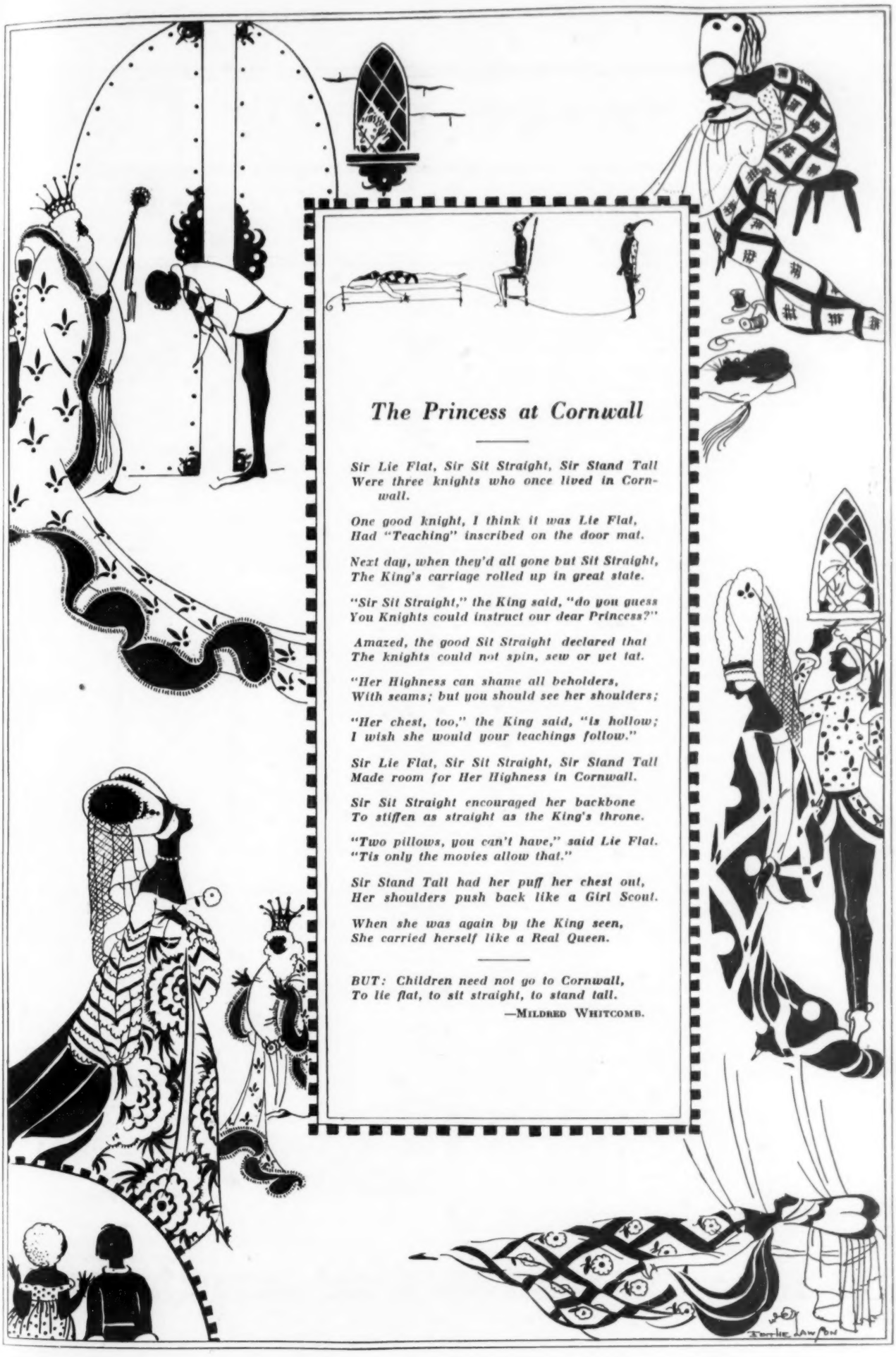
But the teacher may find in the book something more than specific instruction in school work that will meet the needs of a limited class (8 to 10 per cent.) of pupils. Its criticism and suggestions apply to the whole spirit and system of educational routine. These are offered by an intelligent observer, who earnestly desires the highest usefulness of the schools, but who looks at them from the standpoint of their influence on health and individual development rather than as a devotee of mere scholastic efficiency. All through the book are expressions like these:

"Rigid school standards of educational attainment are worthless, so long as the child is sent into the world able to play a useful part." "The importance of letters before the age of 7 is exaggerated by teachers. It would be better if they were not permitted to be formally taught in school before this age." "School is for individual education, not for the mere passing of percentages at examinations."

There is a sustained protest against fatigue of the young child by the fine, exactly coordinated movements of reading and copy book writing. The author insists on training in broader movements and in the development of larger coordinations by blackboard writing, occupational work and playground.

As bringing a broader appreciation of the dangers to vision and general health in school life and a better understanding of the purposes to which HYGEIA is devoted, a specific application of general principles to an important problem, this book is most welcome.

E. J.



The Princess at Cornwall

Sir Lie Flat, Sir Sit Straight, Sir Stand Tall
Were three knights who once lived in Cornwall.

One good knight, I think it was Lie Flat,
Had "Teaching" inscribed on the door mat.

Next day, when they'd all gone but Sit Straight,
The King's carriage rolled up in great state.

"Sir Sit Straight," the King said, "do you guess
You Knights could instruct our dear Princess?"

Amazed, the good Sit Straight declared that
The knights could not spin, sew or yet tat.

"Her Highness can shame all beholders,
With seams; but you should see her shoulders;

"Her chest, too," the King said, "is hollow;
I wish she would your teachings follow."

Sir Lie Flat, Sir Sit Straight, Sir Stand Tall
Made room for Her Highness in Cornwall.

Sir Sit Straight encouraged her backbone
To stiffen as straight as the King's throne.

"Two pillows, you can't have," said Lie Flat.
"Tis only the movies allow that."

Sir Stand Tall had her puff her chest out,
Her shoulders push back like a Girl Scout.

When she was again by the King seen,
She carried herself like a Real Queen.

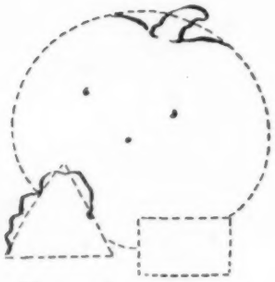
BUT: Children need not go to Cornwall,
To lie flat, to sit straight, to stand tall.

—MILDRED WHITCOMB.

Working Makes the Hours Fly

BY JOHN T. LEMOS

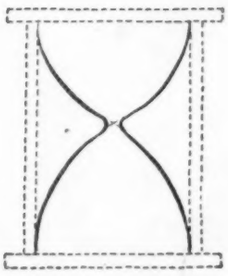
If you want to be happy be sure to keep busy, for the more you work and sing and play, the happier you will be. After you read this, see if you can draw the pictures of Peter Pumpkin, Mr. Sun and the Hour Glass.



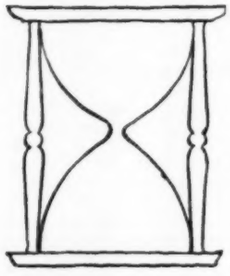
If you should stop
In Healthy Town,
You'd see the people
Running 'round

With saws and hammers,
Rake and hoe,
Working as hard
As they can go.

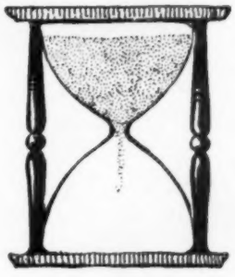
They dig in gardens,
Chop up wood,
And everything they
Do is good.



Because they've found,
In years gone by,
That working makes
The hours fly.

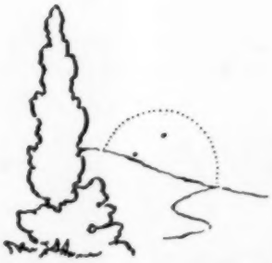


And working puts your
Mind in trim
And keeps Bill Blues
From creeping in.



When you enjoy
The things you do,
It helps develop power,
Too!

Be sure to live
In Healthy Town,
If you would be
Both well and sound.



And sing or whistle
When you try
To do your part
As days go by.

Then, when you tumble
Off to bed,
With sleepy eyes
And nodding head,

You'll know that you
Are doing right
And sleep in peace
Till morning light.

HEALTH NEWS AND VIEWS

SAYS INDIAN POPULATION IS NOT DYING OFF

The popular idea that the American Indian is dying off at an alarming rate is refuted by Dr. Edgar L. Hewett, director of the School for American Research, who has just completed a survey of the pueblo and other Indian populations in New Mexico.

During the last ten years the population of pueblo villages has increased 22.2 per cent. and now totals 10,565, says Dr. Hewett. Only one pueblo showed a decrease and that was due to an influenza epidemic.

Dr. Hewett also finds that Indian ceremonials and dances are not dying out; in fact, they are being revived. They are vital to the life of the Indian, in his opinion, are highly esthetic in character and are not attended by as immoral consequences as are the social dances of the whites.

Only when pernicious features crop out in their dances is any effort being made to suppress the dances of the pueblos. In such cases, the Indians are more amenable to advice than are the youth of our own race, the scientist declares.

Venereal disease is no more common among the Indians than among the whites, according to Dr. Hewett, and when compared with the colored population of the South, the Indians are a much cleaner race.

SOVIET RUSSIA HAS NEW MARRIAGE CODE

A new code of laws regulating marriage, family relations and guardianship adopted by the commissariat of justice of Soviet Russia is printed in the bulletin of the Save the Children Fund International Union. Some of its provisions are:

1. The marriage age for women is 16 years; for men, 18 years.

2. Persons who have been recognized as imbeciles or suffering from a psychic disease or who are relatives on the direct ascending or descending line are forbidden to wed.

3. Married persons may have a common family name if they so declare at the time of registering a marriage; otherwise the wife retains her own family name as before marriage.

4. When a marriage takes place with a person of a foreign country, both husband and wife retain their citizenship. Property acquired by husband and wife during marriage belongs to both on the basis of common ownership. If either is in need or is disabled, he has the right to claim support from the other.

5. An unmarried pregnant woman has the right to register the name of the father of her child in the local department of registration. This notifies the father; if he does not enter any objections in the course of two weeks he is recognized as the father of the child. In cases in which it has been established by the court that other men, besides the one pointed out, have had intimate relations with the woman, the court makes them liable as co-defendants.

6. The rights of parents are exercised exclusively in the interests of the children, and whenever these rights are not exercised in conformity to the law, the court may deprive the parents of their rights.

7. All measures in regard to the children must be taken with the consent of both parents.

8. The parents have the right to send the children to institutions for their bringing up and education, but they have no right to enter into a contract for the employment of the children without the consent of the children themselves.

9. The duty to maintain the children is equally shared by both parents; however, the share of each of the parents in the maintenance is determined by their material conditions.

10. Adoption is permitted only when it is in the interests of the children. The adoption of minors older than 10 years is not permitted without their own consent.

FIRST BORN IS NOT NECESSARILY MOST BRILLIANT

Whether you are a first child or a fifteenth does not affect your chances of greatness, according to Dr. Wilhelmine E. Key, who recently reported to the Eugenics Research Association the results of her statistical studies of eminent persons.

Dr. Key wanted to learn if there was any scientific basis for the popular notion that the eldest child has the best chance of obtaining prominence. She studied the family records of many famous Americans from Alexander Hamilton to Augustus St. Gaudens and Mark Twain, and her conclusions were that the order of birth in a family had nothing to do with their achieving fame.

James Fenimore Cooper was the eleventh of twelve children. General Sherman came in the middle of a large family. Dr. Key's studies seemed to indicate that the regular law of averages was at work when it came to position in family and in world affairs.

PREVENTABLE DEAFNESS

Twenty-five per cent. of the cases of deafness from birth or early infancy are said to be due to venereal disease. Deafness of such origin may be total or partial, and it is usually an affliction of the internal ear. The defect is often not recognized until the child fails to talk.

Syphilitic deafness, says the U. S. Public Health Service, need not be profound, but its gradual or sudden effect on the hearing capacity of the afflicted child often spells economic and social disaster, and it usually reduces life to an obscure and baffling existence. Fortunately, considerable progress has been made in the treatment of deafness of venereal origin, and the future promises still greater progress in its elimination.

The early detection of diseased blood in the expectant mother is essential, so that the possible ear damage of the child may be prevented by adequate treatment of the mother before the birth of the child. The preparation and widespread dissemination of information relating to the prevalence, the detection and the prevention of venereal diseases is a most essential and productive health measure.

CITY SWIMMING HOLES

City playgrounds are most enjoyed when they bring, as well as land sports, the joys of the old swimmin' hole. More than 700 cities now have municipal playgrounds.

Playground and Recreation Ass'n. of America

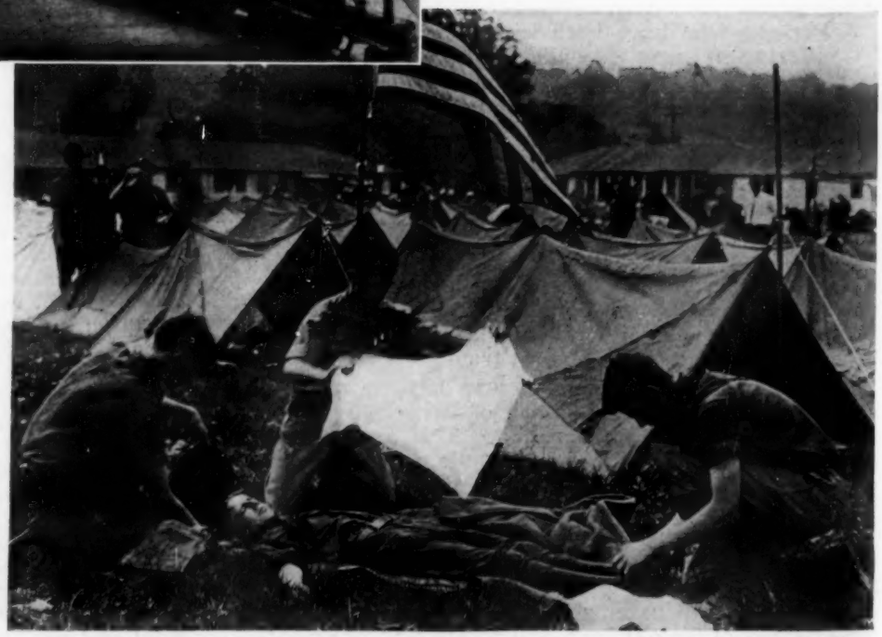
Eddy's Studio

MINISTER AND ARTISAN

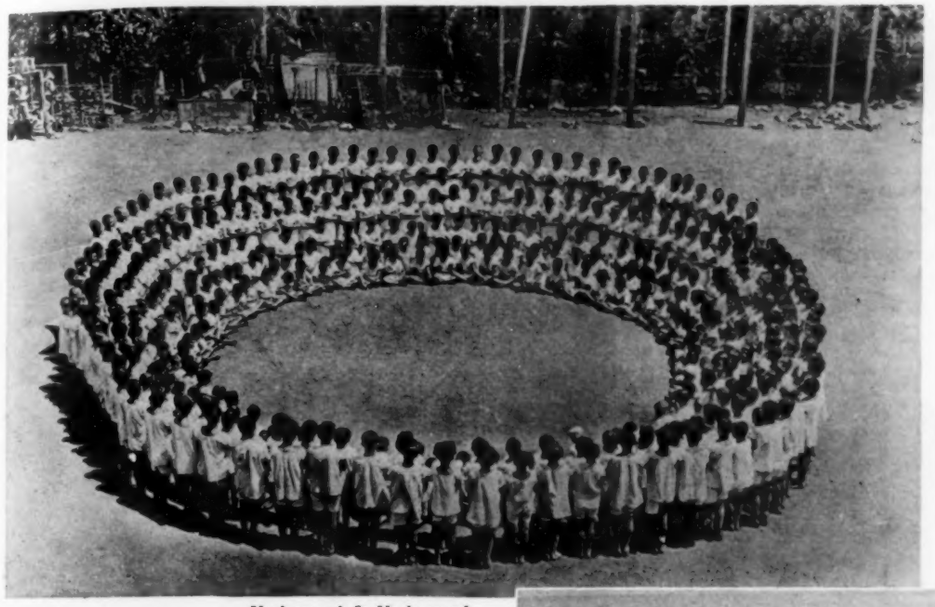
The Rev. Parker S. Fisher of North Carolina has a shop as well as a study. Some of the products of his skill are shown in the photograph. The Rev. Mr. Fisher had infantile paralysis when he was 2 years old, and since that time has been able to stand only with the aid of crutches.

FIRST AID AT SCOUT CAMP

One feels safer with a boy scout in the party. His first aid knowledge is often put to practical tests. Here scouts are engaged in inter-city first aid competitions at a gathering of 400 scouts at the national capital.



Underwood & Underwood



Underwood & Underwood

THE EMPTY BOWL

Five hundred Near East orphans at Antilyss, Syria, are shown here in a formation called "The Empty Bowl." It symbolizes the need of further American relief measures to assist in feeding and caring for the orphans.

BATHTUB OF A RAJAH

This Gargantuan bowl once served as the bathtub of a rajah. It is made of a solid block of marble and a set of steps is carved in the interior of the bowl. It stood open in the courtyard of the rajah's palace in India, and Jahangir used it regularly for his ablutions.

Underwood & Underwood

CHINESE BETTER BABIES

A recent Pacific Coast baby show had an oriental section. These are some of the exhibits of Chinese health and beauty. Some of them look a little bored with the proceedings.

Keystone

WORLD'S TALLEST HOSPITAL

The new St. Luke's Hospital in Chicago is the tallest hospital in the world. It is nineteen stories high and is entirely fireproof. The only wood in the entire building is in the swinging doors at the main entrance.

WATCHING HEART BEATS

The doctor in the photograph to the left is watching a girl's heart beat. She is standing in front of an x-ray machine, and a picture of her internal organs is projected on the glass screen before which the doctor is seated. This scientific apparatus is known as a fluoroscope; the operator wears rubber goggles, gloves and apron to protect himself from continued exposure to the rays.

PLAYROOM OF STEEL

There will be no fires in this playroom for small patients at St. Luke's Hospital, Chicago. The room, of course, is of steel construction and all the miniature furniture is of steel.

Fulton-Lawson Company

CONSERVING THE SIGHT OF SCHOOL CHILDREN

One child out of every seven in the rural schools of the United States has such seriously defective vision as to be handicapped in his schoolwork. One out of every eleven in the city public schools is in the same condition.

These are the findings of the joint committee on health problems in education of the National Education Association and the American Medical Association. Its report was made last month after a study of more than a year conducted in cooperation with the national committee for the prevention of blindness.

The study extended in 375 cities and rural districts in every state. It was participated in by school authorities and health officials in all these communities and by nearly 100 eminent ophthalmologists.

At 6, the average child is far-sighted, the report declares, a condition which gradually decreases until he is 9 or 10 when the tendency to near-sight increases. About the period of adolescence, 12 to 15 years of age, the condition of the eyes is likely to be changing, so that through the whole period from 6 to 15 the average child's eyes and vision undergo a slight, though certain, change. This emphasizes the need of frequent tests during the school period.

Even when the most effective service is rendered for conserving the sight of school children, there will be approximately 48,000 children in the country with such seriously defective vision that they can not be educated in regular classes. Such children are not blind and can no more be profitably educated in schools for the blind that they can in regular school classes.

The recommendations of the report are as follows:

1. As it is likely that teachers, nurses and other nonmedical school examiners will make many of the eye inspections for some time to come, it is most desirable that the school personnel be carefully instructed in the best methods of conserving sight.

2. The eyes of all pupils should be examined yearly under the best possible conditions by the most skilled persons available.

3. Every teacher should be trained to report to the health division of the schools any abnormal eye condition that may be discovered.

4. There is need for a uniform model law for the examination of the eyes of school children in all states and cities of the United States; adequate powers and sufficient money should be made available for school boards to carry out such a law.

5. Greater emphasis must be placed upon the matter of conserving children's vision, especially from the standpoint of finding and correcting the faulty conditions of vision, providing properly lighted classrooms and workrooms, making special provision through conservation of vision classes for those having seriously defective eyesight.

6. While the care of the physical well-being of the child as far as his school life is concerned is a duty that devolves on teachers, nurses, school physicians, and other school personnel, this fact is in no sense to imply that parents are to be relieved of their duties.

RISK IN MARRIAGE WITH PERSON WITH TUBERCULOSIS

That there is a real risk incurred by married persons afflicted with a tuberculous partner is brought out by a recent investigation made by Dr. George Vali of Bucharest, Roumania. Dr. Vali investigated the life histories of a number of widows and widowers who lost their mates through tuberculosis.

The investigator found that between the ages of 30 and 40 the proportion of deaths from tuberculosis was nine times greater on the part of the husbands and wives of tuberculous persons than among the general married population. The fact that this excessive tuberculosis mortality was not due to feebleness of constitution was shown by the fact that their mortality from other causes was not above the normal.

It is certainly a significant fact, says Dr. Vali, that at a period of life which may be taken to correspond to recent widowhood the tuberculosis mortality is eight or nine times above the normal. This knowledge should induce more prudence on the part of young persons in concluding marriage, he believes.

CITY RECOMMENDS IODIZED SALT IN CHILDREN'S DIET

Following the discovery of a disturbing amount of simple goiter among the school children of Lockport, N. Y., the health department of that city recently prepared a number of circulars for parents recommending the use of iodized salt as a preventive measure.

Through the principals of the public, parochial and private schools, more than 4,200 of the circulars were given out. They read as follows:

To the Parent of Bearer

The pubescent age (11 to 16) in children in this section of the country is characterized by a strong tendency to *Goiter, or Enlargement of the Large Gland in the front of the Neck, which is deforming and sometimes serious.* Many Lockport children are affected in this manner to some extent.

This gland is easily and positively prevented from enlarging by taking *Sodium Iodid,* a harmless salt.

Directions

It is earnestly recommended that *Iodized Salt* be used in the households in place of ordinary salt. *Iodized Salt* is simply ordinary salt to which has been added a small amount of *Sodium Iodid.* The taste is the same as the ordinary salt. *Iodized Salt* can be bought at various stores in this city and your dealer will have it in stock if you ask for it.

If children already have *Goiter* or show indications of *Enlargement of the Neck,* it is earnestly recommended that they be taken to a physician for treatment.

City Department of Health,
Lockport, N. Y.

COLUMBIA UNIVERSITY RECEIVES APPARATUS USED BY PASTEUR

Columbia University recently received a gift of three pieces of apparatus used by Louis Pasteur when he was dean of science at the University of Lille, 1854 to 1857. They were sent to Professor Pascal, dean of the school of chemistry at Columbia, and have been turned over to the chemical museum.

Says Dr. Elwood Hendrick, curator of the museum, in commenting on the gift:

"It was at Lille that Pasteur began his great work on fermentation and there he reached the conclusion that this is due to living organisms. This was the first great step and, indeed, the key to the discovery of bacilli and other living organisms in their relation to disease.

"These simple instruments that any glassblower could make—a little flask with a long neck, another little flask with a special ground cap and a U tube with side pieces—take on a new significance when we realize how millions of lives have been saved and hells of suffering avoided by the wisdom, the understanding of nature's ways, reached by the master with these tools in his hands.

QUESTIONS AND ANSWERS

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a two-cent stamp. If the question is of general interest, the answer will be published; otherwise it will be sent by mail. Questions are submitted to recognized authorities in the several branches of medicine and answers framed by them. The names of correspondents will not be published. Diagnoses in individual cases will not be attempted nor treatment prescribed. Answers to questions relating to beauty will be found in the "Healthful Beauty" department of this magazine.

Tattoo Marks

To the Editor:—I would like to have you give me a reliable formula for removing a small tattoo mark from the forearm. I have tried a few formulas without good results. Tannin solution and silver nitrate pencil is one, and glycerol of papoid is another, but neither seem to be efficacious.

J. V. D., Michigan.

Answer.—There is no satisfactory way of removing tattoo marks. As a rule the stain is so deep in the skin that it cannot be removed by any of the methods that you mention, such as the tannin and silver nitrate. These simply cause inflammation and shedding of the surface of the skin.

The marks can be removed by skilful use of a cautery or by freezing with carbon dioxid, but these methods require the skill of an expert and at best leave scars.

A tattoo mark is a fine illustration of the fact that a momentary act of foolishness may be followed by results that cannot be wiped out in a lifetime.

Sterility

To the Editor:—Our home lacks one essential to make it a very happy one. My wife has as yet been unable to become a mother and that keeps from our home the wonderful blessing and joy of parenthood, one of the things to which wife and I have looked forward to with the greatest pleasure. My wife is not strong physically, although she is not sick. She has had no operations. She suffered from a nervous breakdown about five years ago and seems not to have recovered entirely from that. She has had medical examinations since her recovery and her doctor stated that her female organs were in good condition, except weakened as a result of the nervous breakdown. My wife is 31 years old.

C. F. C., Oklahoma.

Answer.—The question of having a family is not alone a problem for the individual but also concerns the nation at large. Upon the fertility of husband and wife the political life and safety of every country depends.

Gradually we have come to understand why some women cannot have children. Conception usually occurs within sixteen months after marriage when no attempts are made to prevent it. It may, however, be delayed for four or five years without any apparent reason. Generally speaking, a woman who does not conceive within three years after marriage may be regarded as sterile though the fault may not be hers. Approximately one woman out of ten is sterile according to this classification.

The blame, which hitherto has been laid entirely on the woman, is nowadays distributed more equally. Apparently she is to blame in only about three-fifths of the cases while the husband must be held responsible for the remaining two-fifths. This does not include persons who use birth control methods nor does it include those who have been exposed to the x-ray or radium.

In some instances a kind of incompatibility, a peculiar systemic uncongeniality, seems to exist between husband and wife which results in sterility, though when the parties are divorced and married again each of the new pairs may have children.

Most cases of sterility, however, are due to some abnormal condition. An anatomical disability may be present in either partner. Aside from this, in the male, a well defined weakness of the secretion and cell involved in conception may be found, or indeed a total absence of living cells. No woman should be accused of sterility until her husband has been proved to be fertile.

On the part of the female the most common obstacle is a lack of development of the organs, such as an undeveloped womb (infantile uterus). This is often associated with obesity and a sharp forward tipping of the womb. Either with or without the infantile condition of the womb, or uterus, there may be found errors of development in other important structures in the female abdomen.

Another larger group of women have had some inflammatory disturbance traceable to germs that have been introduced either directly or indirectly. An inflammation of the lining membrane of the uterus creates an unfavorable environment for the reproductive elements and conception does not occur. The tubes leading from the uterus to the ovaries may suffer in the same way from inflammation by extension from other organs or from direct invasion, and as a result the channel or the tube is permanently sealed up in some part of its course.

Many women have one child and thereafter remain sterile in consequence of infections incurred at the time of conception, in the course of the labor or in the period after labor. Such infections may cause a closure of the tubes or some other part of the birth canal.

Tumors, such as fibroids, polyps and ovarian growths, are also a definite factor in the production of sterility.

From the above remarks it is evident that the most important move in the study of sterility is to determine the cause of the difficulty in any given case. The husband's fertility must be established by microscopic examination as well as the woman's physiological ability to become pregnant.

The examination of the woman will reveal the presence or absence of tumors, malpositions of the uterus, inflammatory disorders (past or present and their consequences), an infantile state of the organs concerned in reproduction, disturbances of the glands of internal secretion (sometimes the cause of obesity), and nervous difficulties.

The openness of the entire genital canal must be assured by a method of inflation of the fallopian tubes; this can be readily and safely done without an anesthetic or surgery.

The management of the condition in turn again depends on the cause. The virility of the male can often be increased by changing the food, the habits of life and the occupation. Many abnormalities of the female organs can be remedied by appropriate treat-

ment and can be followed by conception. The younger the person is the better the chance of success.

Sterility of long standing sometimes disappears spontaneously and without treatment while in other instances the woman never conceives though no real reason for the condition can be found.

Tumors may be removed by operation. Malpositions of the uterus can be corrected by supports or by surgical interference. The undeveloped organs can be stimulated to grow by dilation, by electricity and by other methods. Obesity can often be removed by diet. Where a closure (stenosis) of the uterus exists, or too small an opening, the aperture may be enlarged by dilation and kept open for several days by the introduction of specially devised instruments.

Artificial introduction of the male secretion into the womb also is sometimes successful. Only in cases in which both tubes are closed or a complete and irremediable obstruction is present in some part of the genital canal is the case hopeless.

Pregnancy

To the Editor:—When, in a pregnant woman, the uterus is down so that it almost protrudes, and does at times, will delivery be unusually difficult? This misplacement was caused by a severe cough in the sixth month. I now have five weeks left and there has been no improvement.

M. C. P., Minnesota.

Answer.—The condition described resulted from previous weakness of the uterine supports, and the occurrence of the cough during the sixth month was only a coincidence. It is well for one in this condition to keep off her feet most of the time so as to avoid protrusion.

As a rule, there is little, if any, increase in the difficulty at the time of delivery. Occasionally when the protrusion is considerable a marked swelling of the cervix may interfere with labor.

Care should be taken during the last few weeks to avoid the possibility of infection, although this is very slight when the uterus does not protrude. Should your family physician find conditions such that he wishes the services of a specialist he will undoubtedly tell you so.

Flat Feet

To the Editor:—Can a man of 22 years be cured of flat feet by any other method than by taking exercises? If not, what are the exercises to be taken? How long does it take to become entirely cured? Are arch supports of any value?

B. W., Missouri.

Answer.—There is no satisfactory answer to this question, as the term "flat feet" is used for many different conditions. A low longitudinal arch is quite normal for certain races and often is the accompaniment of very satisfactory feet in persons whose familial type is not of the low arch form. Another type commonly called flat foot is characterized by a very prominent projection of the ankle inward and a rolling down of the inner side of the foot. This is probably the most frequent condition called flat foot.

This condition may be due to lax muscular apparatus from childhood, or even to real paralysis of some of the muscles, such as occurs in infantile paralysis. Then there are numerous inflammatory conditions, commonly called rheumatism, that affect the shape and position of the feet. Injuries and fractures also are causes. So the difficulty in giving direct answers to the questions asked is obvious, as the cause and type of flat feet are not mentioned.

Judicious exercises may help to correct the posture of some feet. Toe dancing is an aid in some cases. Painful feet may need rest rather than exercises to recover their normal function.

There is no definite time to effect a cure and a cure may be impossible. Arch supports are used with apparent advantage when indicated, but their indiscriminate use usually leads to disappointment, if not actual distress.

Perhaps much can be done for this young man's feet but the safest way to go about it is the same as in stomach or heart troubles, to have a careful examination made by a physician who is familiar with the disturbances of the region involved.

Straightening an Eye

To the Editor:—When a baby, my eyes were infected and sore for several weeks, but the sight in the left one was not affected. However, the right eye does not focus properly. For the sake of appearance, I am anxious to have my eye operated on so that it will be straight. One oculist said a tuck could be taken in the nerve that would be satisfacory, but I would like to know your opinion.

B. D. A., Arkansas.

Answer.—An operation can be done and in competent hands is practically free from danger. This would be an operation on a muscle, not on a nerve, of the eyeball. The result of the operation may not be permanent as there is no impulse to single vision with the two eyes. It is meant by this that the two eyes are not simultaneously directed toward and focused on the object looked at. This is probably the reason the eye turned out in the first place. A more definite answer could be given only after an examination and study of the individual case.

Maternity Corset

To the Editor:—How tight should a maternity corset be worn, or should it be worn at all? I expect to be confined in December. I am 23 years of age and this will be my first child. My husband and I want to take a trip to Colorado Springs by auto this summer. It is about 700 miles from here, or a 1200 mile trip complete. Do you think the trip would be too much for me? If you have any literature or book that you could send me, or that I could buy please let me know.

B. W., Kansas.

Answer.—The modern maternity corset is worn low down on the abdomen and thus gives great support. It prevents the heavy uterus from falling forward and from dragging heavily upon the muscles of the back. The corset should be worn just snugly enough to be comfortable. Some do not feel the need of this support but most women derive considerable comfort from its use.

From the sixth month on, the uterus becomes heavy and stretches or tears or strains all the adjacent tissues. A corset properly applied saves much wear and discomfort.

From the sixth month also the uterus becomes every day more sensitive and more apt to expel the fetus. For this reason all travel should be reduced to a minimum. In some cases in which the uterus is especially sensitive the liability to uterine contraction is so great that the woman cannot venture to ride or drive at all without extreme risk. Under no circumstances should long journeys be attempted unless absolutely imperative. The automobile is a frequent agent in the production of abortions and premature labor, either by the fast motion on smooth roads or the roughness of bad roads.

Many books have been issued in recent years covering all phases of this subject. For prenatal care only, the government publishes a small pamphlet which may be had on application; or the Little Blue Book Co. (Girard, Kansas) offers for a few cents an excellent and authoritative booklet entitled "What the Expectant Mother Ought to Know." If a more comprehensive

work is desired probably Reed's "Obstetrics for Nurses" or Slemons "Expectant Mother" would fulfil the requirements.

Noises in Head

To the Editor:—For something more than a year I have been much distressed by noises in my head, not just the usual whizzing or roar from a cold, but an incessant noise that at times is greater than a brass band, a locomotive and a thunderstorm all at one time. Sometimes I have not been able to sleep for nights at a time and am now rarely able to concentrate for long periods on any desk work. My case has been called otosclerosis, but no one seems able to do anything for me; in fact all have said there is nothing that can be done, but I am not willing to believe that. About a year ago I had a report of a treatment given by a physician in Washington, D. C., who uses the x-ray in connection with regular otologic procedure. He reported benefit in 600 cases, or about 60 per cent. of all treated. I would be glad to go to him but cannot just now finance the trip or spare the necessary time. My physician refuses to give me x-ray, although the technic used by the Washington doctor is before him. He says there is no sense to the treatment and that he does not believe it will do any good. It can't hurt me, he says, but he does not want to waste my time and money. Now, I want to ask if you can give me any report on what has been done by others along this line, and if there is a probable chance for some relief from head noises through x-ray. I have already learned to cope with partial deafness but I cannot live through this incessant noise. I feel that my nerves are threadbare now and growing worse all the time.

R. B., Arkansas.

Answer.—The method of treatment instituted by this gentlemen is unreliable. Fundamentally it has no basis. The method or its use does not meet with the approbation of either the scientific x-ray or ear specialists. The reports sent out about it are not such as to command confidence and the statistics are based solely on his own statements.

On the basis of this advice we certainly should not urge any one to waste his time and money in tampering with the ears in this way.

It is not possible to advise about the cause of the noises in the head or as to means of relief in the absence of such knowledge of the case as can be obtained only by a careful physical examination.

It is unfortunately true that some cases of this type are difficult to relieve. The writer should seek further examination and advice from the best physician he can find who devotes his attention exclusively to diseases of the ear.

Removal of Ovaries

To the Editor:—Will you kindly inform me as to the exact physiological changes that occur in a woman 25 years of age with the removal of both ovaries? Does it mean entire loss of health and strength? What affect, if any, has it on the uterus?

E. C., New York.

Answer.—The ovaries serve the important function of maintaining and regulating the energy of women; this is done through an internal secretion that helps to control the nerves of the blood vessels.

When the ovaries are taken out, the circulatory machinery becomes unbalanced and tends to run riot until readjusted. This period of the menopause, which persists for one or two years, is characterized by emotional disturbances, hot flushes, chilliness, sweating attacks, gaseous distension of the abdomen, and exaggeration of numerous minor symptoms that might otherwise cause little distress. During this time the sexual appetite may undergo no change; it is sometimes increased.

With completion of the menopause the patient becomes more placid; there is less driving power and forceful energy. Because of this modified temperament there is a tendency to exercise less and to gain some in weight. The general health and strength are not notably disturbed. Sexual desire decreases; the reproductive organs gradually shrink.

The artificial menopause, such as comes after removal of the ovaries, or after treatment with radium does not differ essentially from the natural change of life. The only difference is that the artificial menopause, occurring suddenly and in younger women, is likely to be somewhat more abrupt and accompanied by symptoms that are somewhat more violent.

Clubfoot

To the Editor:—I am a single girl, in good health, with a strong constitution, and am normal in every way except that I was born with both feet clubbed. One of my feet outgrew this condition and the other was straightened by operation when I was about 13 years old. I never heard of any of the other members of the family on either side being deformed in any way, nor is there any insanity in the family. I have one sister married who has one child, normal in every way. Now I would like to know if I should marry, would there be, according to the laws of heredity, danger or possibility of deformed children? I cannot find anything on this subject in various books, so am writing you for information.

M. R., Nebraska.

Answer.—This inquiry brings up the question of the difference between congenital and hereditary characteristics.

We inherit, through a long line of succession, and by means of the germ plasm, our human form with its imperfections and weaknesses as well as its many adaptations to our peculiar life problems. We also inherit our human brain and human mentality, which have been the chief means of keeping the race on earth for so long. It is a rule of biology, as laid down by most of the authorities, that acquired characteristics of body or mind are not inherited. One does not, for example, inherit a black eye which his father may have acquired by running against a door post in the dark. We do not inherit diseases from our parents or more remote ancestors, although we may acquire them from close contact before or after birth.

Clubfeet, clubhands, "birthmarks" and a large variety of congenital deformities and diseases are *acquired* before birth. The exact cause of such deformities or diseases with which we may be born often cannot be fully determined. We know, however, that they are due to conditions or diseases in the maternal body which react on the growing embryo during its residence within its mother's body. These slight disorders usually cause no disturbance on the part of the mother beyond the discomforts which are present during nearly every human pregnancy.

The child is nourished in the womb by the blood of the mother. The actual blood of the mother probably never mixes with that in its veins. The fluid and dissolved materials in the maternal blood pass through her vessels into the embryo by osmosis. Osmosis may be roughly defined as an oozing through animal membranes. If there be a disturbance in the quality of the dissolved materials in the mother's blood, perhaps due to some cause so slight that she does not even notice anything out of the normal, such dissolved materials may cause irritation of the delicate cells in the membranes surrounding the child.

These membranes sometimes become injured by disturbance of the fluids that nourish them so that they take on a sort of inflammation. The membranes thicken or become in a certain sense inflamed and may mechanically press upon some parts of the embryo.

Owing to its coiled up posture, the leg and arm buds are sometimes pressed on to their injury.

Sometimes portions of the membranes become adherent to the embryo and these adhesions may show on the child when it is born. Again, these bands of adhesions press so hard upon a leg that a portion of the limb is amputated. The pressure of the membranes is more frequently upon the feet than upon the arms and hands owing to the way the legs are curled up within the womb.

Clubfeet and all the other abnormalities that may deform the fetus before birth are not due to heredity but are accidents that occur to the embryo at a very early stage of development and are caused by something entirely outside of it originally.

If you have a child that child is no more likely to have clubfeet or any other deformity than the child of any other woman.

Protein in Diet

To the Editor:—Is it safe to live continuously on a meatless, eggless, nutless diet? 2. How low in protein can a diet be and yet be safe? 3. Are experiments made on rats and guinea pigs, fast-growing animals, safe guides in the diet of man, a slow-growing animal? 4. Is it necessary to curtail the protein to the minimum when one kidney has been removed? 5. Is there a consensus of opinion as to the use of salt in certain diseases? J. L., North Carolina.

Answer.—1. We do not think it wise for one to live indefinitely on such a diet as is suggested, although one might sustain life without milk, eggs or nuts for a long time. The amount of protein material required in the diet depends very greatly on the mode of living.

2. It is the general impression that the majority of persons eat a very much larger amount of protein, as well as of other food substances, than is actually necessary.

3. The results of food experiments in the lower animals have naturally to be interpreted with judgment in reference to their application to human experience, but it is obvious that a large volume of knowledge has been obtained and must continue to be obtained through experiment on such animals because it can be had in no other way.

4. We do not believe that the removal of one kidney would necessitate any material alteration in the diet. The human body is endowed with a much larger provision for the elimination of urine than is necessary, being provided in this regard, as in that of other organs, with a very large margin of safety. One healthy kidney is ample to take care of the needs of the body on any reasonable diet.

5. As to the use of salt there is much difference of opinion. Some physicians believe a salt free diet to be of great value for persons with high blood pressure. Certainly for persons in ordinary health, even with one kidney, the use of salt in moderation is not harmful.

Eczema

To the Editor:—I have a skin disease that the doctor says is a form of eczema. Could a badly abscessed tooth be in any way responsible for this? It started with an injury to the knee, which, when healing, formed yellow scales. Could scratching this spot spread the trouble to other parts of the body and limbs? Are there certain foods that a person who has this trouble should leave alone, and are fruits, such as strawberries or oranges, bad because of too much acid? I am 14 years old and have menstruated for three months, but the last time was over two months ago. Would that have anything to do with my having this skin trouble? E. T., Wisconsin.

Answer.—At some time or other practically all forms of eczema "weep," i. e., exude a watery serum. All eczema is itchy. If the condition followed an injury and is dry and scaly and does not itch, it is some other skin disorder, possibly an infectious dermatitis. The abscessed tooth is probably not a factor.

However, if it is an eczema, the skin is hypersensitive to the normal external irritants, such as change in temperature, soap and water or pressure of clothing. Consequently all sources of irritation, including scratching, should be avoided and soothing preparations appropriate to the condition present should be prescribed by a physician.

The inquirer should follow a diet appropriate for a normal girl of her age, which will include a moderate amount of fresh fruit. Occasionally normal persons and more often eczematous persons are sensitive to particular items of food, such as strawberries, which cause hives, or an increase in the severity of the skin condition. Any article that experience has proved disturbing certainly should be excluded from the diet.

The girl in question probably has not established the menstrual cycle. Only a detailed examination of the functions of the internal glands could determine if these are a factor in her disorder.

Tuberculosis

To the Editor:—In what peculiar danger from tuberculosis does a child stand if one of his parents had spinal tuberculosis, which was cured in childhood? One of his grandparents also had tuberculosis and recovered? Would such a child fall prey to tuberculosis as a result of heredity? Would it make any difference if the grandparent's disease was contemporaneous with the period of the parent's birth? How about the health of the parent following recovery from the disease? Can you recommend any scientific writings that give the results of recent researches on this general problem? F. L. H., Illinois.

Answer.—It is the belief of medical men who have had large experience with tuberculosis that this disease is not directly acquired by heredity. Only about seven cases have been reported in which the tuberculosis germ was actually transmitted from the mother to the fetus in the womb through the placenta. In these very rare cases the infants had tuberculosis at the time of birth.

In the vast majority of cases tuberculosis is acquired by close contact with some person who is suffering from the disease in active form. Most persons become infected in early childhood, frequently without manifesting signs or symptoms that make it evident to any one that the disease is present. The disease becomes quiescent, or inactive, and so remains unless conditions occur later in life that cause the tubercle bacilli to resume activity.

Many physicians are of the opinion that the child of tuberculous parents acquires an immunity against the disease greater than that of other children. However, the susceptibility to this disease is greater the younger the child and so when an open case of tuberculosis develops in any family, the children should at once be entirely removed from all contact with the afflicted person.

A patient fully recovered from tuberculosis may retain perfect health, especially if he pursues a thoroughly hygienic life, taking plenty of rest, avoiding extreme fatigue, having abundance of fresh air day and night (an outdoor life), with a suitable amount of properly chosen food eaten slowly and at regular intervals.

The journals devoted to the discussion of tuberculosis, e. g., the *American Review of Tuberculosis* and the *British Journal of Tuberculosis*, often contain articles dealing with the subject of heredity.

CURRENT HEALTH ITEMS

TWENTY-FIVE YOUNG MEN

How twenty-five students at the Massachusetts Institute of Technology were brought up to normal weight and strength is told in the July *Woman's Home Companion* by Dr. William R. P. Emerson who organized a class for physical fitness.

This class was a purely voluntary effort on the part of twenty-five students who were underweight. Dr. Emerson made a survey of the freshman class and found that the same proportions held as in other schools. There were the usual 5 per cent. overweight, 44 per cent. in the safety zone, 28 per cent. borderline cases and 23 per cent. clearly below the danger line.

Nearly half of the physical defects in the class were concerned with obstructions to breathing and a fifth were matters of posture, reflecting the buckling or breaking down that accompanies lack of adequate support caused by underweight.

Practically all of the young men suffered from overfatigue and faulty food habits. Half of them showed evidence of faulty health habits and poor control.

From the social standpoint a number of them were breaking down under too many dances and consequent loss of sleep, heavy responsibilities in college organizations, exercise when rest was needed, overexertion from athletics and fatigue from college examinations.

The men were then started on their nutrition program, which demanded an entire change in their habits of living. They took time for rest periods and extra lunches. At the end of fifteen weeks there had been an average gain of seven pounds. One man gained twenty-two pounds.

OLD VENTILATION SYSTEMS COSTLY IN HEALTH AND MONEY

Not only do certain state ventilation laws cost the taxpayers unnecessary millions, but they also are injurious to the health of school children, in the opinion of Dr. C.-E. A. Winslow, chairman of the New York state ventilation commission and dean of the Yale school of public health.

Dr. Winslow says that twenty states have ventilation laws based on a disproved theory and he estimates the financial loss each year from this cause at $2,500,000. Mechanical systems of ventilation based on this old theory not only cost more to build but waste millions in operation, he declares.

The old idea of room ventilation called for a minimum of 30 cubic feet of fresh air per minute to every individual occupant of the room. Dr. Winslow and his commission found that ideal room ventilation is not obtained by pouring in a volume of warm air, but by providing a small amount of cool, fresh air to counteract the occurrence of warm, moist and still air.

With an air supply of 30 cubic feet per minute, it is necessary to maintain temperatures generally over 68 F. to avoid unpleasant drafts, Dr. Winslow declares. Such a warm atmosphere causes a rise in body temperature, an increased pulse rate and respiration and decreased blood pressure, and results in markedly diminishing one's working efficiency and in seriously increasing one's susceptibility to respiratory diseases.

The commission reported that among pupils in a classroom ventilated to require the maintenance of a high temperature, colds and other respiratory diseases were 70 per cent. more frequent than among children in two rooms of lesser temperature ventilated by window inlets and gravity exhausts.

Dr. Winslow writes of the commission's findings in the June issue of the *American School Board Journal.*

CANCERS IN RELATION TO MARRIAGE

Breast and ovarian cancers are much more common among single than among married women, while cancer of the uterus causes 73 per cent. more deaths among married women, according to the *Statistical Bulletin* of the Metropolitan Life Insurance Company.

For breast cancer the ratio is nearly three to two among single and married women and for ovarian cancer it is two to one.

These statistics indicate that the functions of the uterus in pregnancy tend to increase the liability of cancer, whereas those of the ovary and breast render these organs less liable to become the seat of cancerous growths.

While figures in the United States show little relationship between the declining birth rate and the mortality from ovarian, breast and uterine cancers, statistics gathered in England and Wales, during a period of declining birth rate, show a distinct upward tendency in the death rate from ovarian and breast cancers, accompanied by a practically stationary rate for uterine growths.

"It is obvious," says the Metropolitan bulletin, "that such data tend to support the thesis that there is a certain relationship between a declining birth rate and an increasing death rate for ovarian and breast cancers."

SAYS UPHOLSTERED MOTOR CARS ARE INSANITARY

The upholstery in a closed motor car is a great dust and germ repository, declares Allen Rogers, supervisor of industrial chemistry at Pratt Institute, Brooklyn, who writes for the July *Nation's Health.*

"The motor car is subject to the most severe conditions," writes Mr. Rogers. "It not only has a chance to pick up dust while standing in the garage, but on the country road it passes from one dust cloud to another. In the city the car meets the rubbish wagon, containing God knows what, runs into a whirlpool of dust at the foot of a skyscraper, and eats the dust of another car all day."

The kind hearted motorist also takes out for a ride the friend who is convalescing from a contagious disease or who may be a disease carrier. The driver may not be in a receptive condition at the time, so he puts the germs in storage in his dust pile on the seat.

Mr. Rogers' tests show that the fabric upholstered motor car is a much greater germ carrier than the leather upholstered car.

He recommends that the motorist vacuum clean his upholstery from time to time, following it by a good sponging with naphtha to remove dust and germs. An antiseptic wash will also be an excellent aid.